

The Mounties and the Origins of Peace in the Canadian Prairies*

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May 2014

Abstract

I study the role of the monopoly of force in shaping cultural traits associated with violence and their persistence. I do so in the context of the settlement of the Canadian Prairies from 1890 to 1920. I find that places with a weaker monopoly of force by the Canadian state during the settlement – as measured by their distance to the early Mounties' fort – were and are still more violent despite the later consolidation of the Canadian state. My interpretation is that counties with a weak monopoly of force during the settlement developed a persistent culture of violence. Consistent with my view, I find that hockey players born in these places behave more violently even when observed in a common environment: the same team in the National Hockey League. Besides the persistence of culture via inter-generational transmission and socialization, I find that culture favors complementary institutions and political views, creating an additional channel of persistence. Finally, I show that the monopoly of force during the settlement crowds out pre-existing cultures of violence brought by immigrants. Despite the persistence of culture and its dependence on past circumstances, the right institutional conditions can change it.

Keywords: Culture, Violence, Culture of honor, Monopoly of force, Monopoly of violence, Institutions.

JEL Classification: N32, N42, D72, D74, H40, J15, K14, K42, Z10

Preliminary draft. Please do not distribute.

*I thank Daron Acemoglu, Abhijit Banerjee, Suresh Naidu and Ben Olken for their comments and helpful discussion.

1 Introduction

In this paper, I explore how past institutions shape culture and study the persistence of these differences. I use the common definition of institutions: they refer to the humanly devised formal rules and laws that constrain behavior (North 1990, Acemoglu and Robinson, 2001). Culture refers to rules of thumb that determine an individual reaction to the same situation.¹ Culture manifests as behavioral heuristics or gut-feelings held within the individual; while institutions exert external influences. I focus on the role of one particular institution: the monopoly of force; and on cultural traits related to the propensity to engage in violent behavior. I do so in the context of the settlement of the Canadian Prairies from 1890 to 1920, where the Mounted police, or Mounties, exercised the law and order. I show that places with a weaker monopoly of force during the settlement – as measured by their distance to the early Mounties’ forts – were and are still more violent, despite the convergence in institutions brought by the consolidation of the Canadian state throughout its territory. My interpretation is that these places developed a culture of interpersonal violence that persisted in time through a variety of mechanisms. To demonstrate the role of culture I compare the behavior of hockey players in the same team but born in different counties. Consistent with my view, hockey players born in places with a weak monopoly of force behave more violently in the ice rink, despite facing the same common external rules and conditions.

The monopoly of force is a particular institution (or a cluster of institutions) consisting of a reliable third party – the state – that punishes individuals who threaten the life and property of others. The distinctive feature of this institution is that individuals perceive an external cost of offending others’ life and property – a perception that would meet reality in any attempt. When the monopoly of force is weak, societies descent into what Hobbes called “the natural state of man.” In such state of affairs, “we find three principal causes of quarrel: First, competition; secondly, diffidence; thirdly, glory” (Hobbes, *The Leviathan*, 1651); man predate (competition), strike preemptively (diffidence), and protect their reputation (glory). Violence escalates as a consequence, as noted since Hobbes (1651) and more recently by Weber (1946) and Elias (1969). A monopoly of force breaks these dynamics by reducing the incentives to predate; rendering preemptive strikes unnecessary; and a reputation for retaliation useless (the state credible punishments replace individual reputations).

Cultural traits supporting violence thrive when the monopoly of force is weak and the risk of expropriation is high. In particular, consider a set of cultural traits that support self-justice, including a belief in honor and its maintenance, low self control and reduced empathy. Henceforth I refer to these cultural traits as a culture of honor or culture of violence, a notion originally introduced by Nisbett and Cohen (1996). A culture of honor becomes useful in such environment because it constitutes a credible deterrence policy: the commonly held belief that you will meet any challenge with violence lowers predation. Thus, societies tend to develop cultures of honor as an imperfect substitute for a missing monopoly of force.

¹Though there are different conceptions of culture, I focus on the previous definition to state my argument precisely. This definition is based on cultural anthropology insights from Boyd and Richerson (1985). Other authors, such as Greif and Kingston (2011) define culture and institutions as equilibrium elements, including beliefs, norms and expectations about the enforcement of rules. In their framework, the distinction between culture and institutions is not clear cut. I prefer a more narrow definition for the sake of clarity when stating my argument and describing my evidence.

However, a culture of honor becomes costly because it cannot be fine-tuned. Cultural traits are like muscles; once exercised under some conditions they influence behavior across the board. Elias (1969) famously argued that, in 19th century Europe, improvements in table manners exercised self control, which led to less brawls and fights (See also Pinker, 2011). Putted bluntly, it is hard to fine-tune cultural traits to meet challenges to property with extreme violence, and yet react with a sense of humor to an insult later at the bar. As a consequence, a society outside the monopoly of force that develops a culture of honor could end up having less property crime – the dissuasive power of these cultural traits – but more homicides resulting from insults or bar brawls, and (the fewer) attempts of expropriation. Moreover, cultural traits may persist after the institutions and ecological conditions that created it are long gone.² Thus, a culture of honor developed in the past is also associated with more violence in the present: from homicides resulting from arguments that escalate to aggressions in the ice hockey rink. As the sociologist Donald Black argues, the majority of homicides in the U.S. are seen as acts of self-justice by perpetrators; while most are triggered by arguments unrelated to the circumstances that brought a culture of self-justice in the first place (see Black, 1993).

To summarize, the argument outlined above implies that places with a weak monopoly of force historically are more likely to develop a culture of honor or violence. These cultural traits are associated with more violence in the past and persistent violence in the present, independently of changing external circumstances. The objective of this paper is to test this hypothesis.

I explore the relationship between the monopoly of force in the past and violence in the context of the settlement of the Canadian prairies circa 1890. This offers a unique historical case in which a large borderland was settled and incorporated in a peaceful way, specially when compared to the settlement of the U.S. great plains. As argued by some commentators, the early deployment of the Mounties in the Prairies is responsible for part of the relative success in terms of law and order during their later settlement (Macleod, 1973, Graybill, 2007). In his book, “The Better Angels of our Nature,” Steven Pinker supports this view, writing that “Canadians kill at less than a third of the rate of Americans, partly because in the 19th century the Mounties got to the western frontier before the settlers and spared them from having to cultivate a culture of honor.” (Pinker, 2011). Mounties is the short name for the Royal Canadian Mounted Police, which was the arm of the Canadian state exercising the monopoly of force in the Prairies. The mounties were not only policing the great plains, but also enforced contracts, resolved disputes and provided other public services: the mounties were the legitimate representative of the state.

In this paper I study the persistent effects of the Mounties deployment before the settlement on past and contemporary violence. I exploit the fact that new settlements differed on the strength of the monopoly of force: while some happened to be located near pre-established Mounties’ forts and enjoyed more law and order, others were far from them and faced lawlessness. As I will argue in more detail below, the location of the initial mounties’

²Culture persists through a variety of mechanisms. First, by parental transmission (Bisin and Verdier, 2001; Doepke and Zilibotti, 2008). Second, by social interactions with peers (Glaeser, Sacerdote, Scheinkman, 1996 and Gaviria, 2000) or previous generations (Gaviria, 2000 and Acemoglu and Jackson, 2013). Third, by affecting preferences over institutions in favor of those complementary to existing cultural traits, which in turn increase the payoff of these cultural traits in the future (Tabellini, 2008).

forts was largely driven by political considerations unrelated to violence, and the characteristics of migration during the settlement were not affected by proximity to the forts. This variation makes the settlement of the Prairies a relevant context to study the effect of the monopoly of force, during a critical period with large immigration and little reliance in other mechanisms other than the Mounties or inter-temporal violence to enforce property and resolve disputes.

Consistent with the theoretical framework outlined above, I find that places farther away from existing Mounties' forts in 1885 were more violent in 1920 and are more violent today. In particular, a 10% increase in the proximity of a Mounties' fort during the settlement reduces homicides by 2.45% and violent crimes by 3.41%. My evidence supports Pinker's quote above: the presence of the Mounties at the time of the settlement of the Canadian Prairies reduced violence persistently. My interpretation is that areas outside the Mounties' scope during the settlement, nurtured cultures of honor. In contrast, areas nearby the early forts were under the effective control of the Mounties, who spared them from developing such cultural traits. The Mounties are at the root of the origins of a long-lasting peace in Canada.

The key difference between culture and institutions is that the later lies within the individual and influences his behavior independently of the context. I argue in this paper that culture plays a role in explaining the persistent effects of Mounties' proximity during the settlement – an event that occurred about 100 years ago. The first piece of evidence comes from the fact that violence persists despite the fact that the ecological conditions that operated during the settlement are long gone. In particular, contemporary institutions are similar within Canada in the present; there is a strong monopoly of force by the state throughout its territory. The persistence of violence in the face of converging external conditions suggests a role for culture. To further support my interpretation and isolate the role of culture I study the behavior of individuals in a common, controlled environment with the same formal rules: ice hockey. Consistent with my interpretation, I find that hockey players born in counties with weaker state presence during the settlement receive more penalty minutes than other players in their same team. Since penalty minutes are awarded mostly for aggressive and violent behavior, the evidence is consistent with individuals from different origins having different cultural traits they carry with them to the ice rink, and shape their behavior even in this common environment. Institutions and economic conditions (poverty, population, etc...) cannot explain these differences since ice hockey players face the same external conditions in the rink when skating for the same team. The interesting finding is not that players behave differently in a common context, but that history explains these differences in a consistent and intuitive way. This result also shows that cultural traits are not fine-tuned as suggested before. Despite originating in the past as a result of a weak monopoly of force in economies with a high risk of expropriation, these cultural traits still govern behavior in activities as varied as playing ice hockey 100 years later.

The previous result does not imply that culture is the only channel through which historical events persist. Complementarities between institutions and cultural traits could also explain persistence (see Tabellini, 2008). I provide some suggestive evidence for this channel by comparing the political views of counties with different exposures to the Mounties during the settlement period. I find that places far from the Mounties' early forts are more likely to vote for the conservative party of Canada in parliamentary elections. This party emphasizes

a limited role of government and opposed restrictions on gun ownership. These divergent political views nurtured by local cultures may affect local institutions, and slow down the consolidation of the state monopoly of force throughout the territory. Slower institutional convergence, or divergence in other unobserved local institutions, would further foster a culture of honor among lawless areas during the settlement, and help explain the persistence of violence.

The last question I explore is whether institutions crowd out inconsistent cultural traits or, on the contrary, backfire when the appropriate cultural conditions are not in place. This is also related to whether culture changes depending on external conditions or it is so deeply held within individuals that only bottom up processes can change it. I do so by estimating the interaction between the Mounties deployment, which was largely a top-down institutional change, and pre-existing cultural traits brought by settlers. As suggested by Nisbett and Cohen (1996) and shown by Grosjean (2013), Scots-Irish settlers in the U.S. brought a culture of honor nurtured during years of herding in the borderlands of England. Scots settlers brought a similar culture of honor to Canada (the Irish settlers that came to Canada were different from the Scots-Irish that came to the U.S.. If anything, they were more religious and peaceful than other groups). Consistent with Nisbett and Cohen's hypothesis, places with a larger share of Scots settlers by the end of the settlement are more violent today, and produce hockey players that get more penalty minutes in the Ice rink. Despite the strength and persistence of the cultural traits brought by the Scots, their presence did not affect the civilizing effects of the monopoly of force. On the contrary, the Mounties had a larger persistent reduction in violence in places with more Scots. My interpretation is that the Mounties crowded out the culture of honor brought by Scots by providing a better substitute to the protection of property: the monopoly of force by the state. As shown by Grosjean (2013) as well for the U.S., the culture of honor brought by the Scots in Canada only flourished in areas with a weak monopoly of force. At least in this context, institutions did not require the right cultural background to be successful at reducing violence. The top-down process of consolidating the monopoly of force in Canada during the settlement succeed even in areas with strong cultures of honor.

The rest of the paper proceeds as follows. Section 2 reviews the literature and explains my contribution. Section 3 presents the historical background of the Canadian Prairies settlement. Section 4 describes my measure of the monopoly of force during the settlement and gives details on the Mounties activities at the time. Section 5 presents results on violence. Section 6 presents results on hockey players behavior. Section 7 presents results on persistence through political views and institutions. Section 8 presents results regarding the interaction with pre-existing cultural traits brought by certain groups. Section 9 concludes.

2 Related literature

My paper is related to several areas that I briefly review here. Alesina and Giuliano (2013), and Nunn (2009, 2012, 2013) provide extensive surveys on the economics of culture and institutions that cover most of the material.

First, it is related to the study of the historical determinants of cultural traits. This literature, as my paper, shows that historical events have persistent effects on present culture.

For instance, Alesina, Giuliano and Nunn (2013) conclude that cross-country, cross-region and cross-ethnicity differences in gender roles are related to agricultural practices in the pre-industrial period. These differences are also detectable in the beliefs of children of immigrants from different origins living in the U.S. or Europe, suggesting an important role for culture. Voigtlander and Voth (2012) trace the origins of anti-Semitism in Germany to plague-era pogroms, showing that cultural traits persist locally for long periods (over 600 years). Nunn and Wantchekon (2011) document that Africans whose ancestors were heavily raided during the slave trade are less trusting today. Exposure of your ancestors to the slave trade is more important than the exposure of the location where respondents live in determining mistrust, suggesting a role for culture.

A subset of this literature focuses in the role of past institutions in shaping culture, as my paper does. Alesina and Fuchs Schundeln (2007) show that the political institutions of east Germany brought different views on the state, which persisted after the fall of the Berlin wall, but are gradually fading away. Related to this, Pesakhin (2010) and Becker et al. (2011) show that self-reported cultural traits differ across different sides of old empire borders with different historical institutions, despite the borders being no longer relevant from a geopolitical perspective. Guiso, Sapienza and Zingales (2013) show that the institution of free cities during the middle ages affect contemporary levels of trust.

One particular literature that is closely related to my paper studies the institutional and historical origins of cultures of honor. This literature dates back to Nisbett and Cohen's book "Culture of Honor: The Psychology of Violence in the South." The authors argue that the "southern preference for violence stems from the fact that much of the south was a lawless, frontier region settled by people whose economy was originally based on herding." According to their argument, the ease with which herds could be stolen and the lack of state presence – the nearest sheriff was 90 miles away – led southerners to develop a culture of honor that persists until today. The defining element of a culture of honor is that individuals resort to violence to protect their reputation and property; "Every man should be sheriff on his own hearth" – as the proverb says. Nisbett and Cohen present a variety of results consistent with this interpretation. They show that white southerners kill more than their northern counterparts. Importantly, the difference only appears in conflict-related homicides. Using surveys and laboratory experiments, they show that southerners do not endorse violence on the abstract, but violence related to self-protection; are more sensitive to insults; and suffer different physiological responses when their honor is questioned.³ Additional research supports Nisbett and Cohen's conclusion. Reaves (1993) shows that, within the south, white male homicide rates are higher in the hills and dry plains – more suitable for herding – than in farming regions. Grossjean (2013) shows that the share of Scots-Irish settlers in one

³In the experiments, a confederate of the researchers – whose role was unknown to the subject – would push and insult the subject randomly before a test. Southerners were more sensitive to the bump as measured by revealed anger and projected hostility in the test. Additionally, Cortisol and testosterone levels – hormones associated with stress and dominance respectively – increased more for southerners who were randomly bumped. In a variation of the experiment, a second confederate measuring 1.91cm and weighting 114kg would walk straight towards subjects that were randomly bumped or not by the first confederate. Insulted southerners did not move from the large confederate trajectory until he was about one meter away, as compared with three meters for non-insulted southerners. For northern subjects, the insult did not change their reaction. In both cases they cleared the way when the confederate was two meters away.

particular county during the 18th century predicts past and current homicide rates in the south. She finds no effect on the north and shows that Scots-Irish only had a persistent effect on violence when institutional quality was low.

My contribution to the literature on the origins of culture is twofold: First, I show that a particular institution – the monopoly of force – prevents the development of cultures of honor. Thus, cultures of violence can be traced to historical contexts of lawlessness, as suggested by Nisbett and Cohen's. Second, I show that Scots' settlers also brought a culture of honor to Canada, but it only thrived in areas outside the scope of the Mounties.

Second, my paper is related to a literature that goes beyond survey measures of culture, and isolates the role of culture from institutions or persistent economic forces. The challenge in identifying the role of culture is that it is correlated with persistent external influences (i.e., institutions and economic forces). The standard solution is to compare individuals from different national origins observed in a common environment, facing the same formal rules and institutions (a strategy used by several of the papers summarized above). This strategy isolates the role of culture – which individuals carry across borders – from institutions and economic factors – which are common. Based on this idea, Giuliano (2007) shows that second generation immigrants from western Europe tend to replicate family structures from their country of origin, suggesting a role for culture in explaining parent-child ties. Algan and Cahuc (2005) find that differences in culture affect labor supply behavior of workers in the same country. They emphasize the role of tastes for family structure inherited from different ancestries. Fernandez and Fogli (2009) show that the country of ancestry of second-generation American women affects their fertility and labor market decisions. Their interpretation is that culture, which they proxied by fertility and labor market outcomes in woman's country of ancestry, persists; is passed to younger generations; and influences fertility and labor market decisions. Fisman and Miguel (2007) study the behavior of UN diplomats living in New York and working in nearby areas. They find that diplomats from more corrupt countries accumulated more parking violations than other diplomats (diplomats were exempt from paying parking tickets before 2002). Ichino and Maggi (2000) find that workers from a large bank in Italy also carry their cultural background to work when it comes to shirking, holding the location and characteristics of the workplace constant. Miguel, Saiegh and Satyanath (2011) show that the duration of civil war in a soccer player's country of birth correlates with their violent behavior on the field, as measured by yellow and red cards. I contribute to this literature by showing that even people from the same provinces but from counties with different histories carry their own cultural baggage to the hockey rink. However, behavior converges for newer cohorts and more experienced players.

Third, my paper is related to the literature on the long-lasting effects of institutions. Acemoglu, Johnson and Robinson (2001) pioneered this literature by showing that institutional arrangements during the colonization of the New World had long lasting effects. Dell (2010), shows that areas inside Peru's mining *Mita* have worst outcomes today than similar areas just outside the *Mita*. The effects of this institution persist despite the demise of the *Mita* in 1812. The argument in this literature is that historical changes in institutions during critical junctures can have large and persistent effects through a variety of mechanisms. I contribute to this literature by focusing in one particular institution – the monopoly of force. This institution played a key role during a critical juncture – the settlement of the Canadian Prairies, and had persistent effects even at the sub-national level. Differently from

this literature, I emphasize the role of culture in creating persistence.

There is a more specific literature on the role of the monopoly of force in reducing violence. One branch of this literature focus on the direct effects of enforcement on crime and violent behavior.⁴ Though I do not focus on the direct effects of enforcement – or a consolidated monopoly of force, these papers support an important part of my argument: that punishments by the state constrain behavior. As I argued above, these external constraints render the development of a culture of honor less important. The role of the monopoly of force in reducing violence has been recognized at least since Hobbes (1651) and Weber (1919), and in the economic literature since Grossman (1991) and Hirshleifer (1991, 1994, 2001). More relevant for my interpretation is the work of other social scientists suggesting that the monopoly of force not only had a direct dissuasive effect, but changed culture. Sociologist Norbert Elias argued in his book “The Civilizing Process”, that the monopoly of force triggered a process of civilization; accompanied by a change in values, a rise in empathy and a decline in the reliance on self-justice (see Elias, 1978). Psychologist Steven Pinker provides historical evidence supporting this view in his book “The Better Angels of our Nature” (see Pinker, 2011).

Fourth, my section on persistence via political economy mechanisms is related to the literature on the effects of culture on institutions. The premise in this literature is that individuals with different cultures favor institutions that are complementary to, or consistent with, their traits. Max Weber famously argued that protestant ethic favored pro-market institutions in the U.S. (see Weber, 1978). Greif (1994) is another important contribution. The author shows that the evolution of formal and legal institutions regulating medieval trade was heavily influenced by religious differences. In his book “Albion’s Seed: Four British Folkways in America,” the historian David H. Fischer argues that political arrangements in the U.S. were determined by the culture of the British groups settling each area (Fischer, 1989). For instance, puritan pilgrims from East Anglia arrived to Massachusetts and set up institutions to promote education and order. People from the borderlands of England (the Scots-Irish) settled the Backcountry. They brought with them a culture of self-justice, so they favored minimal government intervention and a limited justice system. I present some evidence consistent with this last point: communities with cultures of honor developed in the absence of the monopoly of force are more likely to support the conservative party in Canada. This is related to Spierenburg (2006) view that the culture of self-justice in the U.S. made people reluctant to disarm their selves once they were given political power, and influenced the political process. In a recent op-ed in The New York Times, Steven Pinker draws on Fischer and Spierenburg ideas to argue that the red and blue divide can be traced to the culture of settlers.⁵

⁴Building on the insights of Becker (1969) and Ehrlich (1973), there is a large literature estimating the direct effect of enforcement on crime using a variety of techniques (see Levitt, 1997; Corman and Mocan, 2000; Bar-Ilan and Sacerdote, 2001; Di Tella and Schargrotsky, 2004; Evans and Owens 2007; Draca, Machin and Witt, 2011; Buonanno and Mastrobuoni, 2012; Garcia, Mejia and Ortega, 2012). In a related vein, Couttenier, Grosjean and Sangnier (2013) show that state presence curbed violence outbursts caused by the gold rush in the U.S. western frontier; while violence persisted (through institutional quality and culture) in other counties as an alternative to enforce property rights.

⁵http://opinionator.blogs.nytimes.com/2012/10/24/why-are-states-so-red-and-blue/?_php=true&_type=blogs&_r=0. Accessed on May 5th, 2014.

Finally, my paper investigates the interaction between institutions and prevalent cultural traits. In particular, it is related to the literature on whether institutional reforms can work without the appropriate cultural background. Hayek (1960) argued that this was not the case, and that only the organic evolution of institutions was possible. Since then, several papers argue that culture is so deeply held that top-down institutional change is not possible unless the right cultural traits are in place. For instance, Guiso, Sapienza and Zingales (2013) show that a culture of trust is required for a well functioning democracy (based on the ideas of Putnam et al., 1993). Trust is itself a deeply held belief with historical origins. Todd (1990) argued that communism only flourished in places where families have strong hierarchies and are egalitarian among siblings. These places had values that were more consistent with communist rule. Acemoglu and Jackson (2014) argue that private cooperation (i.e., whistle blowing) is required to implement some formal laws. This creates a complementarity between formal laws and social norms guiding the behavior of cooperating individuals. In extreme cases, formal norms may backfire when the right social norms are absent. Other papers suggest that institutions may crowd out desirable cultural traits or other informal arrangements (see for instance Benabou and Tirole, 2011).⁶ In contrast, other papers provide historical examples of successful top-down interventions. Acemoglu et al. (2011) show that the French revolution brought radical institutional reforms to occupied German areas. They find that despite variation in bottom-up conditions, the reforms brought more subsequent economic growth. I contribute to this literature by showing that top-down institutional changes may work even when the appropriate cultural traits are missing. In my particular context, the monopoly of force exercised by the mounties crowds out intrinsic motivations for violence. Therefore, it reduces violence by more when a rule of violence is in place, instead of backfiring. This provides one additional example in which top-down institutional reform changes existing cultural traits, even if they are deeply held and inconsistent with the imposed institutions. Like Grosjean (2013), my paper suggests that cultures of honor only thrive when the monopoly of force is weak (in her paper for the U.S. they only thrived in the deep south and not in the north).

3 The settlement of the Canadian Prairies

The formal origins of the Mounties date to 1873, when Canadian prime minister Sir John A. MacDonal created the North West Mounted Police (NWMP) via a parliamentary act (it was renamed Royal Northwest Mounted Police in 1904, and Royal Canadian Mounted Police in 1920). The objective of the force was to bring order to the newly acquired Prairies – encompassing the provinces of Alberta, Manitoba and Saskatchewan. By the time, the Prairies remained unsettled and were home to natives, fur traders and a temporal hideout

⁶There is a large legal studies literature on this suggesting that external rewards and punishments crowd out intrinsic motivation. Richard Titmuss, argued in “The Gift Relationship” that explicit incentives in the case of blood donations crowd out voluntary behavior (Titmus, 1997). In psychology, the possibility has been widely studied since Deci (1975). The effect receives several names, including the “Hidden Cost of Reward” (Lepper and Greene, 1978), the “Overjustification Hypothesis” (Lepper, Greene and Nisbett, 1973) or “Cognitive Evaluation Theory” (Deci, Koestner and Ryan, 1999). The psychology literature is supported by many experimental studies finding crowding out effects. In economics, the “Motivation Crowding Theory” of Frey (1997) is one of the earliest mentions to the possibility that incentives may backfire.

for whiskey traders from Montana. The Mounties were to prepare the territory for the settlement that took place from 1890 to 1920, in what constituted a process of incorporation of a frontier territory and state building by Ottawa central authorities. The deployment of the Mounties took place in 1874 during “The March West”: the first NWMP campaign, consisting of 300 men. The March West started at Fort Dufferin, in Manitoba, and went across the Prairies until reaching southern Alberta. Several forts were established during the March and subsequently. Besides the consolidation of the Canadian state in the Prairies, the Mounties’ immediate objectives were to disrupt illegal whiskey trading from the U.S., supervise treaties with the First Nations (indigenous population) and the fur trade, and defend the territory from U.S. expansionary pressure in the south (Graybill, 2007). By the end of their initial expansion in 1895, the Mounties had established their presence with over 800 men scattered around the Prairies in forts and moving patrols; by 1905 about 4,200 men had served in the NWMP, showing its rapid consolidation. From 1895 to 1920 the force expanded beyond the Prairies to the northwest into Yukon and Alaska, where it handled the Klondike gold rush with great success (see Morrison, 1974, for an historical overview and a comparison to the U.S. gold rush). As migration to the Prairies increased, the force focused its efforts into maintaining peace and order in the new settlements in Alberta, Saskatchewan, and the north of Manitoba. From 1920 onwards, the Mounties became a national full-scale police force, achieving coverage of all the Canadian territory. Currently, the police counts with 28,640 members organized in 750 detachments, covering the entire territory (except Quebec and Ontario, which maintain provincial police forces).

Several unique features make the Mounties more than an ordinary police force – specially during their early deployment, and explain the persistent significance of this institution. The Mounties deployment was a centralized move by Ottawa. Their origin and initial allocation was a top-down process with little local resistance (it preceded the settlement of the Prairies, and they managed to have a peaceful relation with natives). The NWMP had, in fact, a highly centralized structure. Officers came from eastern Canada’s elites, and were trained in military and legal affairs. Their functions went beyond traditional law enforcement duties: they served as mailmen, judges and magistrates, collected customs, acted as census takers and provided medical services.⁷ This variety of services led Mounties to be viewed as the legitimate users of violence in the Prairies. Despite the military orientation of the force, they seldom engaged in violence, and usually conformed to Ottawa’s hopes of a peaceful and ordered occupation of the territory. Mounties wore scarlet uniforms that helped built their identity as a national police force and consolidate as an important part of the Canadian heritage. A telling tale is that, currently, only 6% of the people from the Prairies thinks the role of the Mounted police is insufficient in keeping them safe; while 80% trust the Mounties (data from the General Social Survey, Victimization cycle, 2009). The Mounties fame grew to such mythological proportions that even Walt Disney purchased licensing rights to their image.⁸

⁷As one Mountie observed, members of the force “acted as magistrates, sheriffs, constables, collectors of customs, postmasters, undertakers, issuers of licenses. We married people and we buried people. We acted as health inspectors, weather bureau officials, Indian Treaty makers; but above all, as diplomats” (see Fitzpatrick, 1921).

⁸My survey of the Mounties history has been rather favorable, specially when compared to similar police forces (i.e., the Rangers). However, there are dissenting views suggesting there is more mythology than

One defining characteristic of the Mounties I exploit in this paper is that, unlike other contemporary police forces (i.e., the rangers in the U.S.), they built forts during their initial expansion and subsequently, consisting of barracks, stables, and field hospitals organized around a central square. Forts were used as key control and expansion points during the settlement of the Prairies. Mounties' activity was organized around the forts, which were later used as divisions' headquarters and gave a sense of permanence and stability in the surrounding areas. From these forts, the Mounties organized moving patrols to cover the Canadian territory (allegedly, their horses traveled close to 2.4 million km on patrol every year around 1890). Patrols guaranteed a regular presence of the enforcers of the monopoly of force throughout the territory, but much so close to the forts, and less so in places far from the forts (especially during the winter, when long patrols were canceled and temporal forts closed).

The settlement of the Canadian Prairies by European immigrants, eastern Canadians and other North Americans took place rapidly from 1890 to 1920: in 1881, Manitoba and the northwest territories had a combined population of 75,000; in 1901 the population was 460,000; by 1916, a census of the Prairies registered 1'700,000 inhabitants. This process was held back until the late 19th by the Canadian rocky shield; a large stretch of land separating Eastern Canada from the Prairies that was unsuitable for agriculture. The late arrival of immigrants allowed the Mounties to arrive first and pave the way for settlers, who found various conditions in the Prairies. Initial settlements near the initial forts were subject to the monopoly of force by the Canadian state; while those in areas far from the Mounties' deployments were lawless. These different conditions shaped social interactions and culture at least during 30 years with a large influx of immigrants and little reliance on informal agreements to maintain property and peace. Several factors coincided during 1890 to 1920 and prompted the rapid immigration process. First, the Canadian Pacific Railroad advanced west. Interestingly, the railway followed the route of the Mounties early deployment, as they maintained law and order among laborers and enforced a prohibition on drinking and gambling (In a less optimistic note, the Mounties were also used to break strikes by the Railroad company employees). Second, pioneers introduced new varieties of wheat, which could be profitably grown in the Prairies. Third, Ottawa started a vigorous campaign to attract settlers to the Prairies. Under the leadership of Minister of Interior Clifford Siftons, the soil quality of the Prairies was advertised in Europe and settlers received 160 acres of land and subsidies for their travel expenses. The early Mounties deployment did not play a major role in starting the immigration wave, which occurred well after the March West. However, the Mounties did assist with the settlement process, taking special care of non-english speaking immigrants.

The settlement of the prairies occurred in ethnic blocks. Groups of settlers from a

fact surrounding the Mounties. For instance, despite recognizing obvious differences with the U.S. Rangers, Graybill (2007) argues that the Mounties were elements of incorporation. He emphasized the role of Mounties in protecting white settlers from natives; removing people of mixed ancestry that posed a treat against economic interests of settlers; and siding with capitalists to disrupt labor unrest and strikes. Hildebrandt (1994) argues that the Mounties were part of a process of cultural imperialism. They did not respect natives' culture, and instead promoted policies that resulted in their starvation. My argument in this paper does not imply these views are false, but rather that the Mounties did provide benefits in terms of enforcing the law and reducing inter personal violence, at least among white settlers.

common origin would create communities from east to west across the railroad line, and then moved North and South looking for available land. Moreover, the federal government explicitly attempted to space ethnic blocks throughout the Prairies to favor the consolidation of a national culture. The Prairies became a “cultural mosaic” composed of smaller ethnic blocks, rather than a melting pot (see Anderson, 2006). As a consequence, local cultures persisted; block settlements used their dialects, customs and traditions. Importantly, ethnic enclaves were scattered throughout the prairies in locations that were largely determined by federal policies and the availability of land at the time of immigration, implying little selection of immigrants in certain areas.

The hypothesis I test using this historical setting is as follows: when settlers arrived to the Prairies from 1890 to 1920, they occupied the territory in a quasi-random way determined by the timing of immigration. Migrants found a different context depending on where they settled. Areas near Mounties’ forts were under the effective monopoly of force of the Canadian state; the Mounties exercised the rule of law, served as judges, enforced contracts and did so in a peaceful way, under the threat of the legitimate use of violence. Mounties conducted regular patrols and the proximity of the forts created a feeling of permanency. This was the most common state of affairs in the Prairies, where the Mounties presence brought, in general, a peaceful settlement – specially if one contrast this to the violent settlement of the U.S. southwest plains. Historical evidence by R.C. Macleod, supports this view, suggesting that the Mounties discipline and their system of forts and patrols were successful at maintaining peace during the settlement (see Macleod, 1973). However, settlements far from the Mounties early forts faced different conditions: patrols were not as frequent, and there was no sense of a permanent monopoly of force. In these lands, settlers relied on interpersonal violence to enforce property rights, resolve disputes and enforce contracts. Settlers in remote hard-to-access areas developed (or reinforced) a culture of honor, which became specially relevant during a period of fast immigration precluding other types of informal arrangements to sustain peace. This culture of honor persisted through a variety of mechanisms despite the subsequent expansion of the Mounties throughout the Canadian territory and the consolidation of the Canadian state. One of the channels through which this culture persisted was by bringing different political views that may have slowed down the process of institutional convergence. The consequences of the divergent cultural paths include more violence today and the persistence of cultural traits that shape individuals behavior even when facing a common environment and rules in the Ice hockey rink.

4 Measuring the monopoly of force by the Mounties during the settlement

I use the distance to Mounties’ forts as a proxy for the strength of the Monopoly of force. In particular, I focus on the ten main forts created during the early deployment of the Mounties from 1874 to 1895, whose location was largely determined by the March West and the primary objectives of the NWMP during its initial expansion (namely, to disrupt whiskey trading, enforce treaties with the First Nations, and control U.S. expansionary pressures in the south). Figure 1 depicts a map of the Prairies and the location of the Mounties’ forts.

Henceforth I refer to these as the early Mounties' forts, which include (in chronological order of foundation): Dufferin, founded in 1872; Ellice, founded earlier but in use in 1875; Whoop Up, recovered from whiskey traders in 1874; MacLeod, founded in 1874; Calgary, founded in 1875; Saskatchewan, founded in 1875; Battleford, founded in 1876; Walsh, founded in 1878; Carlton, leased by the NWMP in 1880; and Writing on stone, founded in 1887. Not all of these forts were used during the settlement period: the majority were replaced by larger headquarters in the same town; others were replaced by nearby ones; and a few were abandoned (many of the original forts' locations are currently historical landscapes with no military functions). Despite this variation, the proximity to these forts provides a crude measure of the strength of the monopoly of force exercised by the Mounties in the Prairies, at least during their settlement. Areas near the early forts benefited from a stronger Mounties' presence, either directly – because the forts operated during the settlement, or indirectly – because the forts were used to consolidate the presence of the Mounties in certain areas that became important centers of operations (even if the original fort was replaced or abandoned). From these early forts the Mounties consolidated their expansion, creating new forts in nearby areas and patrolling surrounding territories.

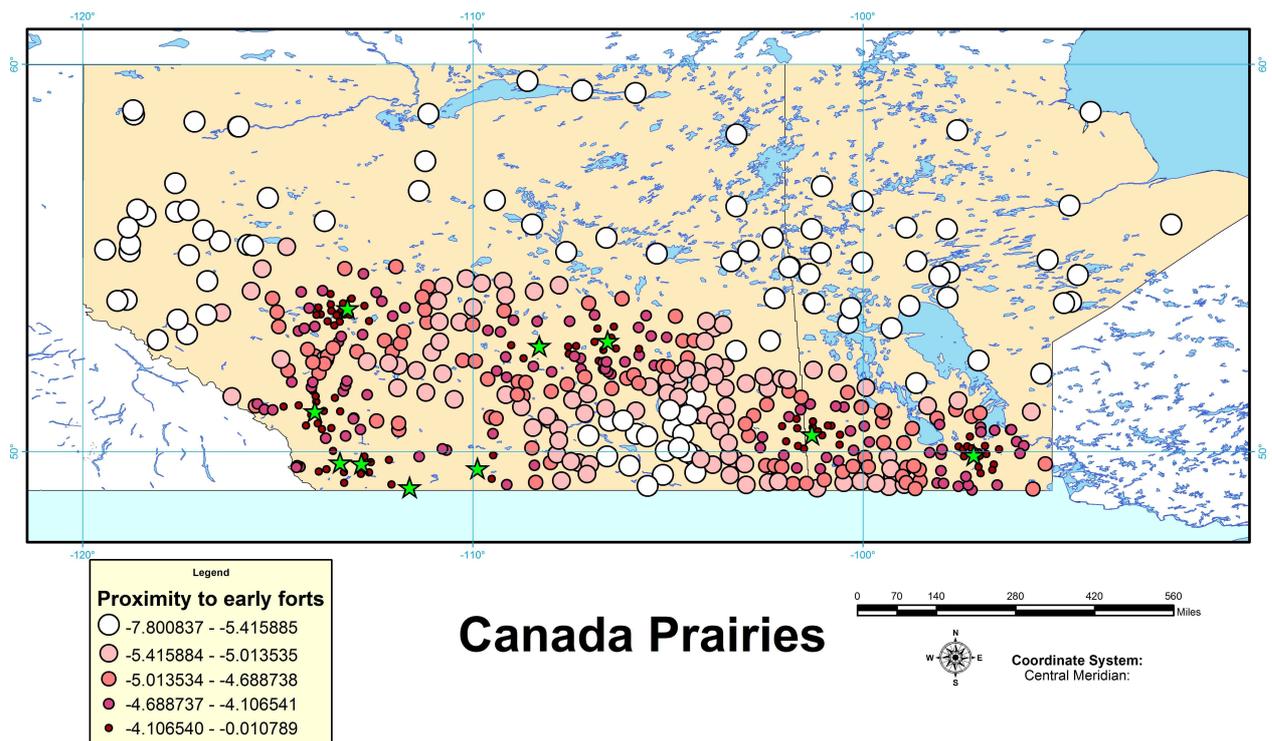


Figure 1: Location of Mounties' early forts (green stars) during their deployment circa 1895 and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts.

Though new forts were created during 1895 and 1920, I abstain from using their locations to measure Mounties' presence. From 1895 onwards, the location of new forts reflected the need to police the growing settlements and the national expansion of the force. Though relevant, this corresponds to an endogenous expansion of the force that is likely to respond to

local conditions (including unrest or violence). Though early forts only provide an incomplete picture of the Mounties' presence, I regard their location as largely exogenous to violence during the Prairies settlement.

I denote by d_c the geodesic distance of a county's centroid in my sample to the nearest early Mounties' fort. Figure 1 shows the location of the counties in my sample color-coded to denote their proximity to the early forts. My argument implies that a monotonic and (weakly) decreasing function of d_c , $M(d_c)$, provides exogenous variation in the strength of the monopoly of force during the settlement of the Prairies. I will interpret regressions results as causal and will discuss potential confounding factors as they arise in the presentation of my results.

5 Effects of early deployments in contemporary and past violence

5.1 The persistent effects of the Mounties

I start by documenting the persistent effects of the Mounties early deployment in contemporary violence. I use the average homicide and violent crime rates reported at the police station level in Canada from 2008 to 2012.⁹ There is at least one reporting station for each county in Alberta, Manitoba and Saskatchewan, with some counties having several stations with non-overlapping jurisdictions. Each incident is counted in the statistics of the station in charge of the jurisdiction where it occurred. Overall, there are 541 reporting stations located in 362 counties covering the entire Prairies, though not all stations report both homicide and violent crime rates. The centroid of the counties in the sample are shown in the map in Figure 1. The average homicide rate in the prairies during these years is about 3 per 100,000 inhabitants, and the violent crimes rate is about 2,300 per 100,000 inhabitants. Though these numbers are lower than corresponding U.S. statistics, they hide large heterogeneity.

I estimate the following regression model

$$\ln v_{scp} = \beta M(d_c) + \alpha_p + \Gamma X_s + \Theta X_c + \varepsilon_{scp}. \quad (1)$$

Here $\ln v_{scp}$ is the log of the homicide or violent crimes rate reported by station s , whose jurisdiction lies in county c and province p , averaged from 2008 to 2012.¹⁰ $M(d_c)$ is my proxy for Mounties' strength during the settlement. In this section I use two particular functional forms: a dummy that takes the value of one for counties within 100 km of some early fort and zero otherwise, and minus log of the distance.¹¹ X_s and X_c are station level controls (if

⁹The crime statistics in Canada consist of a compilation of different police station reports. All of these stations are run by the Mounties, who have federal policing duties in present day Canada. The data can be downloaded from <http://www.statcan.gc.ca/>, and contains yearly reports at the police station level

¹⁰Since $v_{scp} = 0$ for some counties I use a monotone transformation of the homicide rate defined as $\ln(v_{scp} + a) \mathbb{E} \left[\frac{v_{scp} + a}{v_{scp}} \mid v_{scp} > 0 \right]$, with $a = \min_{v_{scp} > 0} v_{scp}$. This is well defined, approximately equal to $\ln v_{scp}$ when a is small, and the regression results can be interpreted as if the LHS variable is in regular logs (for small changes). My results hold for different values of the shifting parameter a , or if instead I use a dummy for whether $v_{scp} > 0$.

¹¹I use $M(d_c) = -\ln(1 + d_c)$ so that I do not give a large weight to counties in which forts were located, and for which $d_c \approx 0$. However, using $M(d_c) = -\ln d_c$ yields similar results.

located in urban or rural areas) and county level controls, respectively. The error term ε_{scp} is allowed to be correlated within county, which is the level of variation of my treatment. All reported standard errors are therefore clustered at the county level and robust against heteroskedasticity.

Table 1 presents my results. Column 1 in the top panel presents estimates of equation (1) controlling for state fixed effects and a dummy for rural stations. I obtained the results in this column using minus the log distance to the early Mounties' fort as the proxy for the monopoly of force during the settlement. The estimate on the Mounties' presence proxy indicates that counties 1% closer to the Mounties' forts around 1895 have a 0.245% lower homicide rate. The standard error for this estimate is 0.058%; making it significant at the 1% confidence level. In column 2 I add a set of covariates from the 1921 census, including share of Catholics, Protestants, Christians, and share of immigrants from different ethnic origins, as well as a cubic polynomial in the county population during the 1921 census. In column 3 I add a cubic polynomial on the county population in 2011. The controls in columns 2 and 3 could be affected by the Mounties' presence, and therefore are bad controls (specially contemporaneous population). However, it is reassuring to observe that the estimates remain significant and negative in their presence. Columns 2 and 3 indicate that my estimate is not driven by differences between large population centers and other areas, or differential settlement patterns (with the caveat that the endogeneity of the controls make this only a suggestive test).

Columns 4 to 6 reproduce columns 1 to 3 using a dummy variable that takes the value of 1 for counties within 100km from the early forts as a proxy for the Mounties' presence during the settlement. The 100km threshold represents the distance that could be covered by a horse in a couple of days. The exact number is rather arbitrary, but I obtained similar results using different thresholds (50km, 75km, 125km). The estimate in the top panel, column 4, shows that counties within 100km from the early Mounties' forts have 45.9% less homicides per capita (standard error=12.2%). This result remains roughly unchanged when I add controls in columns 5 and 6.

The bottom panel presents analogous results using violent crimes as the outcome. Violent crimes include homicides, attempted murders and assaults, among others. My estimate in column 1 implies that counties 1% closer to the Mounties' forts around 1895 have contemporary violent crimes rates 0.341% lower (standard error=0.064%), and counties within 100km from early forts have a 63.0% lower violent crimes rate (standard error=11.4%).

Though both proxies for Mounties' presence give similar results, I use minus the log of distance onwards in most exercises. I do this because I believe this is more consistent with my story: patrols made the effect of Mounties fade continuously. Moreover, logarithms are a parsimonious transformation that does not weight heavily counties far from the Mounties.

Figure 2 shows scatter plots of the partial correlation between Mounties presence during the settlement and homicide (left panel) and violent crimes (right panel) in my preferred specifications in column 1 of Table 1.

Though I directly controlled for population and settlement composition, these may be endogenous controls. Thus, I follow additional strategies to show that these factors are not driving my estimates. I first analyze the role of population. Mounties presence is associated with larger settlements in 1921 and larger populations in 2011. Both relationships are highly robust and significant. Thus, population may be a potential confounding factor. I think

Table 1: Effect of Mounties' presence during the settlement on contemporary violence.

Mounties' measure:	<i>Minus log distance</i>			<i>Within 100km from fort</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. variable is the log homicide rate between 2008-2012.</i>						
Mounties early presence	-0.245*** (0.058)	-0.208*** (0.071)	-0.196*** (0.071)	-0.459*** (0.122)	-0.453*** (0.137)	-0.442*** (0.136)
R-squared	0.049	0.115	0.122	0.038	0.116	0.124
Observations	541	541	541	541	541	541
Clusters	362	362	362	362	362	362
<i>Dep. variable is the log violent crimes rate between 2008-2012.</i>						
Mounties early presence	-0.341*** (0.064)	-0.268*** (0.076)	-0.244*** (0.076)	-0.630*** (0.114)	-0.601*** (0.123)	-0.573*** (0.123)
R-squared	0.072	0.148	0.161	0.048	0.152	0.167
Observations	532	532	532	532	532	532
Clusters	358	358	358	358	358	358
<i>Covariates:</i>						
1921 census covariates		✓	✓		✓	✓
Current population			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in the top panel is the log of the homicide rate between 2008-2012. The dependent variable in the bottom panel is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

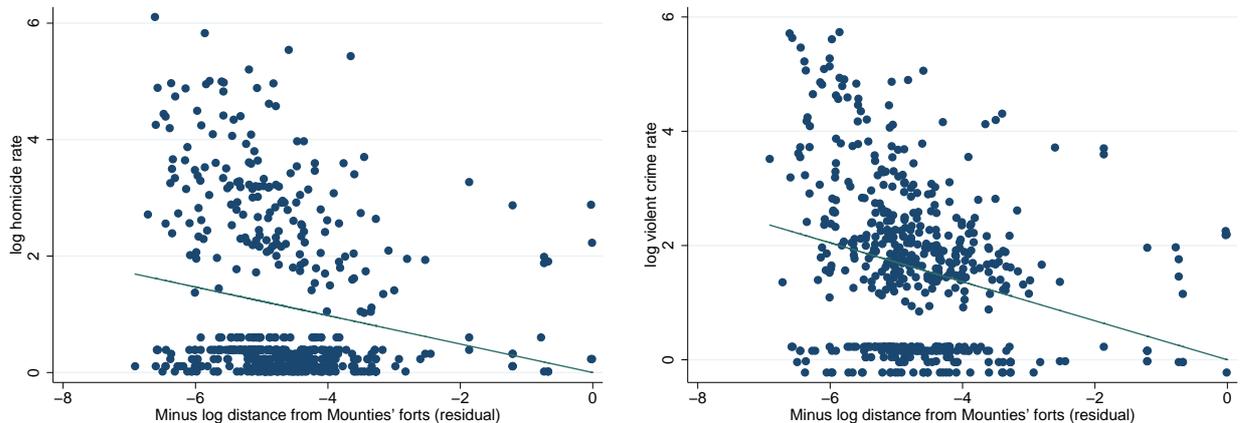


Figure 2: Partial correlation between Mounties' early presence and contemporary violence between 2008 and 2012. The left panel depicts results using the homicide rate in the vertical axis; while the right panel does the same for the violent crimes rate. In both figures, state fixed effects and a dummy for rural reporting stations are partialled out.

this is not problematic: the literature argues that highly populated areas are more prone to homicides and violent crimes (see Glaeser and Sacerdote, 1999). Thus, if anything, the fact that areas near the Mounties have large populations imply that I underestimate their beneficial impact in crime. To further address this issue, I restrict the sample in several ways and present my results in Table 2. The top panel shows similar results if I restrict the sample to rural police stations. The structure of the Table is similar to Table 1, with the difference that I focus on the minus log measure of Mounties' presence and present the results for homicides and violent crimes in the left and right panel, respectively. Likewise, the bottom panel shows similar results if I restrict the sample to the 75% smallest counties in my sample in terms of population in 2011. These results suggest I am not capturing differences between large urban areas and small rural towns, as one might be concerned. All the same, my preferred estimates in columns 1 and 4 in both panels of Table 2 are more negative than their corresponding estimates in column 1 of Table 1. This result is consistent with a common finding in the literature of historical persistence: the past is more important in rural areas or small towns with less external influences (though it could also reflect the negative impact of Mounties on crime through higher population).

Among the variables controlling for the ethnic origins of settlers, only the share of Scots in 1921 is consistently associated with more contemporary violence and the share of Irish with less. Settlers from other areas (British, continental Europe, eastern Europe, or Asia) do not appear to have an influence on subsequent levels of violence. In section 8, I will discuss the role of Scots and Irish settlers in more detail. For my purposes in this section, I simply show that Scots, and Irish settlers did not self select in areas depending on the presence of Mounties. Figure 3 shows that there is no partial correlation between Mounties' presence and the share of settlers from Scotland and Ireland (the t-stats for a test of significance of the Mounties' presence are 1.24 and 1.38, respectively). This evidence suggests my estimates do not capture differential settlements patterns or self-selection of different type of immigrants. This result also supports my view that the prairies were a "cultural mosaic", with smaller enclaves (of Scots and Irish settlements for instance) spaced throughout in a largely arbitrary way.

Now I explore to what extent my estimates exploit broad differences between northern and other counties, or more narrow variation. Table 3 presents several exercises. In the first two panels I find negative effects of Mounties' presence on contemporary violence after removing from the sample the 5%, or the 10% more northern counties, respectively. However, as I remove northern counties from the sample, the estimates get closer to zero. When I remove the 25% more northern counties, my estimates on homicides are negative but not significant; while my estimates on the violent crime rate still suggest that a 1% increase in proximity to the Mounties' reduces the violent crimes rate by 0.165% (standard error=0.069%). Directly controlling for latitude and longitude has a similar effect, and only my estimates on violent crime rates remain significant, but closer to zero. Figures A1 to A5 in the appendix illustrate the variation exploited in each estimate. This suggests that, even though my results are not driven by a few counties in the north, an important part of the variation I am exploiting is the coarse difference between northern counties and others – specially for the results involving the homicide rate. I do not think this is problematic. My conceptual framework suggests that it is this broad and coarse variation what should matter. The lack of a monopoly of force during the settlement has more to do with an area being remote and hard to access from

Table 2: Effect of Mounties' presence during the settlement on contemporary violence in different subsamples.

Violence measure:	<i>Homicides</i>			<i>Violent crimes</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Sample of rural police stations.</i>						
Mounties early presence	-0.292*** (0.083)	-0.190* (0.099)	-0.165* (0.099)	-0.493*** (0.083)	-0.377*** (0.095)	-0.329*** (0.094)
R-squared	0.053	0.138	0.145	0.131	0.263	0.286
Observations	367	367	367	360	360	360
Clusters	324	324	324	319	319	319
<i>Sample of 75% smallest counties.</i>						
Mounties early presence	-0.299*** (0.092)	-0.233** (0.097)	-0.230** (0.098)	-0.371*** (0.096)	-0.299*** (0.101)	-0.283*** (0.103)
R-squared	0.071	0.148	0.154	0.064	0.167	0.172
Observations	405	405	405	398	398	398
Clusters	304	304	304	300	300	300
<i>Covariates:</i>						
1921 census covariates		✓	✓		✓	✓
Current population			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in columns 1 to 3 is the log of the homicide rate between 2008-2012. The dependent variable in columns 4 to 6 is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

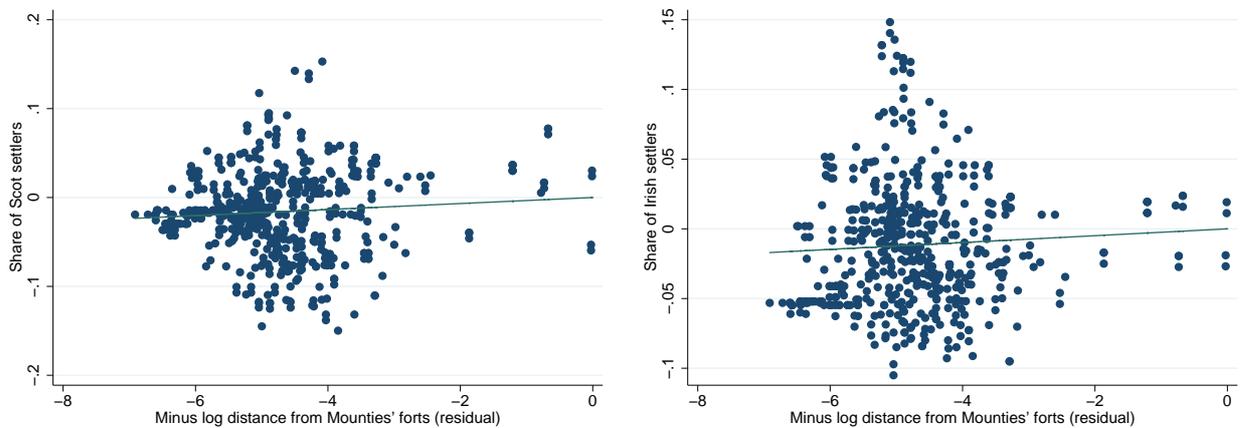


Figure 3: Partial correlation between Mounties' early presence and share of Scots and Irish settlers in 1921. In both figures, state fixed effects and a dummy for rural reporting stations are partialled out.

the early forts, and not with more micro level variation in the distance to a fort, specially once one takes into account that Mounties were mobile and conducted regular patrols.

The fact that my estimates exploit north vs. south differences, is not necessarily worrying from an identification perspective either. This would be a problem if latitude was associated with more homicides through other channels. But the literature on crime suggests that, if anything, more northern counties should be less violent given the lower temperatures (see Anderson, 1989 and Reifman, Larrick and Fein, 1991, who incidentally compare aggressions in baseball games depending on the temperature and find a positive association). For instance, the pattern is reversed in the U.S., where the south is more violent. My view is that the conditions during the settlement, and not latitude, explain these differences. In the U.S. the deep south was the frontier lawless area; while in Canada, the north of the Prairies played this role. Latitude does not appear to have an independent effect.

In the appendix I explore the sensibility of my results to outliers using several techniques. Figure 2 already reveals no outliers. Results eliminating counties with a large standardized residual or a large cook's distance confirm this. Finally, I explore the sensitivity to additional controls.

I argued and will provide further evidence, that part of this persistence is caused by the development of a culture of honor. This raises the question of why would a culture of honor be reflected in more homicides, even after the Mounties' consolidated the monopoly of force throughout the territory. My view is that a culture of honor persists through a variety of mechanisms and would continue to guide the process of decision making today, by providing behavioral heuristics. These are largely unconscious influences manifested in a gut feeling about the appropriate action; accompanied by physiological changes. A culture of honor increases contemporary violence in several ways: first, reduced empathy creates more propensity for violence. Second, the intolerance to insults and challenges, typical of cultures of honor, imply that discussions and arguments escalate. In fact, a large share of homicides occur in the context of arguments between acquaintances (see Reed, 1981 and Simpson, 1985). As an homicide detective quoted in Nisbet and Cohen (1996) put it: "Murders result from little ol' arguments over nothing at all. Tempers flare. A fight starts, and somebody gets stabbed or shot." Third, from the perspective of the perpetrator, homicides consist of acts of self-justice (Black, 1983). Thus, a culture of self-justice leads to more homicides, attempted murders and assaults, even when the ecological conditions that nurtured it are long gone.

5.2 The Mounties role during the Prairies' settlement

So far I have established that Mounties' presence is related to contemporary peace. However, my interpretation of the results is based on the assumption that the Mounties created peaceful settlements in areas they patrolled frequently and were closer to their early forts. Unfortunately, data limitations preclude a suitable test of this premise, making this section more speculative than the previous one.

The main challenge is that (to my knowledge) there are no official crime statistics at the turn of the 20th century. Instead I use the ratio of widows to widowers from the 1911 census as a proxy for homicides. Since men are more likely to be killed than women (see Kellermann and Mercy, 1992), an increase in homicides raises the number of widows relative to the

Table 3: Effect of Mounties' presence during the settlement on contemporary violence controlling for differences between north and south.

Violence measure:	<i>Homicides</i>			<i>Violent crimes</i>		
	All	Rural	Small Counties	All	Rural	Small Counties
Sample:	(1)	(2)	(3)	(4)	(5)	(6)
<i>Excluding 5% northern.</i>						
Mounties early presence	-0.212*** (0.061)	-0.266*** (0.088)	-0.255** (0.101)	-0.301*** (0.066)	-0.439*** (0.084)	-0.321*** (0.101)
R-squared	0.037	0.042	0.060	0.060	0.107	0.045
Observations	512	345	377	505	340	372
Clusters	339	303	282	335	299	278
<i>Excluding 10% northern.</i>						
Mounties early presence	-0.148*** (0.056)	-0.180** (0.086)	-0.189** (0.093)	-0.252*** (0.066)	-0.361*** (0.082)	-0.253*** (0.094)
R-squared	0.021	0.025	0.041	0.053	0.084	0.029
Observations	486	325	359	479	320	354
Clusters	321	286	267	317	282	263
<i>Excluding 25% northern.</i>						
Mounties early presence	-0.039 (0.052)	-0.068 (0.089)	-0.040 (0.091)	-0.165** (0.069)	-0.211** (0.087)	-0.113 (0.085)
R-squared	0.010	0.016	0.030	0.065	0.053	0.020
Observations	405	267	285	399	263	281
Clusters	266	232	215	262	228	211
<i>Controlling for latitude and longitude.</i>						
Mounties early presence	-0.058 (0.050)	-0.058 (0.081)	-0.031 (0.074)	-0.144** (0.065)	-0.215*** (0.078)	-0.050 (0.069)
R-squared	0.112	0.119	0.138	0.150	0.234	0.166
Observations	541	367	405	532	360	398
Clusters	362	324	304	358	319	300

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in columns 1 to 3 is the log of the homicide rate between 2008-2012. The dependent variable in columns 4 to 6 is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

number of widowers. Other factors affecting mortality of man and woman proportionally do not affect this measure. The advantage of this measure is that it can be obtained at a disaggregated level from old censuses. I use the 1911 census because I still do not have data on widow/widower status for other censuses. In any case, earlier censuses offer an incomplete picture because crime was extremely low before the fast rise in population, and early settlements were concentrated in a few areas. The 1911 census provides a more complete picture of how people settled the whole Prairies and their living conditions by the height of the immigration process (though I would rather use the 1921 census, when the settlement process had consolidated. Unfortunately I do not have data on marital status for this census yet). Using this proxy raises obvious concerns: factors unrelated to violence add noise (i.e., accidents, gender-specific diseases, discrimination, etc...); not all homicides create more widows than widowers, since not all murdered man are married; and widows could have lost their husbands in other counties and then moved. Given these shortcomings, the results in this section have to be interpreted with caution.

I estimate the following regression

$$\ln \left(\frac{\text{widows}_{cp}}{\text{widowers}_{cp}} \right) = \beta M(d_c) + \alpha_p + \gamma X_c + \varepsilon_{cp}. \quad (2)$$

Here, widows_{cp} and widowers_{cp} are the number of widows and widowers in county c and province p during the 1911 census. $M(d_c)$ is my proxy for Mounties' strength during the settlement. α_p are a full set of province fixed effects and X_c are county level historical controls (including share of settlers from different ethnicity and religion, and population).¹² The error term ε_{cp} is assumed to be independent. All reported standard errors are robust against heteroskedasticity.

Table 4 presents several estimates of model (2). In column 1 I present estimates using only province fixed effects as controls and using the minus log specification for $M(d_c)$. My results suggest that settlements 1% closer to early Mounties' forts had 0.122% less widows than widowers. The result holds after adding historical covariates in columns 2 and 3, or using alternative functional forms for $M(d_c)$ in columns 4 to 6. As before, the result also holds if I restrict the sample by removing the 10% more northern municipalities, though my estimates are considerably smaller and less precise.

I interpret these findings as suggesting that settlements near the mounties had environments where man died less, presumably because of lower levels of violence. However, violence is not the only potential explanation: remote areas may develop different economic activities, with more dangerous occupational hazards for man (i.e., cattle ranching, hunting, among others). All the same, other authors support my interpretation and argue, using historical sources, that the Mounties law enforcement efforts were associated with lower levels of crime (though they do not exploit any natural experiment). For instance, Macleod (1973) uses NWMP diaries and documents the low crime rates prevailing in areas under the Mounties' control. My suggestive evidence – with all of its caveats, together with the historical evidence, is consistent with the key part of my argument suggesting that the Mounties contributed to peaceful settlements in areas under their scope.

¹²Unfortunately, such controls are not available for the 1911 census, so I have to control for their 1921 levels. I am currently in the process of fully digitalizing all censuses, and will be able to control for 1911 variables in future versions of this paper.

Table 4: Effect of Mounties' presence during the settlement on log widow to widower ratio in 1911.

Mounties' measure:	<i>Minus log distance</i>			<i>Within 100km from fort</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Full sample of all counties</i>						
Mounties early presence	-0.122*** (0.029)	-0.127*** (0.029)	-0.114*** (0.028)	-0.163*** (0.046)	-0.147*** (0.047)	-0.174*** (0.041)
R-squared	0.083	0.148	0.392	0.037	0.098	0.371
Observations	348	348	348	348	348	348
Clusters						
<i>Excluding 10% more northern counties.</i>						
Mounties early presence	-0.062* (0.032)	-0.065** (0.030)	-0.087*** (0.029)	-0.089* (0.049)	-0.071 (0.047)	-0.134*** (0.043)
R-squared	0.021	0.109	0.320	0.013	0.097	0.309
Observations	317	317	317	317	317	317
Clusters						
<i>Covariates:</i>						
Historical population		✓	✓		✓	✓
Historical composition			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on violence during the settlement. The dependent variable is the log of the widow to widower ratio in each county. The unit of observation is the county, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity are in parentheses.

6 The role of culture: evidence from ice hockey

It is possible that the persistent effects of the Mounties' presence during the settlement are not entirely explained by culture. Conditions during the settlement also affect the development of institutions, policies, laws, social and economic conditions more conducive to violence. The effects on contemporary violence could reflect the persistence of these external channels as well. However, I argued in the previous sections that culture plays a role. My hypothesis is motivated by the observation that early Mounties' forts are currently irrelevant from a law enforcement perspective. In fact, during and after the settlement new forts were created, and since 1920 when the Mounties were given federal policing duties, they achieved full coverage of the Canadian territory. In present day Canada, the Mounties exercise the monopoly of force in all counties independently of their distance to the early forts (in fact, crime reports are recorded by Mounties stations covering the entire territory). The convergence of external factors suggests, but does not prove, that culture plays a role in explaining the persistence of violence caused by the absence of the Mounties during the settlement. In particular, there could be unobserved external conditions that did not converge.

To support my view, I isolate the role of culture from other external factors by comparing the behavior of hockey players born in different counties in the Prairies, but playing in the same hockey team. This is a group of individuals with diverse cultural backgrounds, coming from counties with different exposure to the Mounties during the settlement, but facing the exact same environment in the hockey rink (which, in this case, happen to be lenient towards violence, allowing players to reveal their true colors). The intuition behind this strategy is that players from different counties with different exposure to the Mounties carry different cultural values to the ice rink. External factors are left behind and cannot explain differences in their behavior when playing hockey.

Formally, I estimate the following model

$$\ln y_{istcp} = \beta M(d_c) + \Gamma X_{is} + \alpha_p + \delta_s + \eta_t + \varepsilon_{istcp}. \quad (3)$$

Here, y_{istcp} are penalty minutes per game received by player i , during season s , born in county c in province p , and currently playing for team t . The variable of interest is $M(d_c)$, which is my proxy for Mounties presence during the settlement in the player's county of birth. In this section I focus on my preferred specification using the minus log functional form. X_{is} includes individual controls (age, experience, first season dummies, position dummies, among others). $\alpha_p, \delta_s, \eta_t$ are a full set of province fixed effects, season fixed effects and team fixed effects. The error term ε_{istcp} is allowed to be correlated within counties of birth, which is the level of variation of my proxy for Mounties' presence during the settlement. All reported standard errors are therefore clustered at the county level and robust against heteroskedasticity.

Before moving to the estimation I summarize the hockey data, which is the only non-standard dataset used. I have data on the career of players that made it to the NHL since 1980. For each of them, I have playing statistics for all the seasons played in leagues in North America since 1980. These leagues include the National Hockey League (NHL), minor pro leagues, junior and college leagues in the U.S. and Canada. I have data on players characteristics including birth year, place of birth, first season in the NHL, position, height and weight. For each season I observe the league and team in which the player skated, as well as several statistics including games played, points and penalty minutes. I restrict

my sample to players born in the Prairies; and I match each player to his county of birth. Overall, my sample includes 10,980 player/seasons observations, for 1,269 male players from 208 different counties in the Prairies. The subsample of seasons played in the NHL includes 4,666 player/seasons.

I use penalty minutes per game as a proxy for violent behavior in the ice rink. Players receive penalty minutes when they behave violently or recklessly, charge or hit other players or engage in fights. Fights are tolerated, but the instigator and the more aggressive player involved receive penalty minutes. Though I view penalty minutes as reflecting a wide range of violent, aggressive, retaliatory or careless behavior, the measure is imperfect, as it includes noise unrelated to violent behavior (see the Appendix for a list of all the infractions resulting in penalty minutes from Chong and Restrepo, 2014). All the same, a culture of honor could lead to more penalty minutes in several ways. First, cultures of honor emphasize responding to challenges and insults. In Ice hockey this translates into more fighting, or more aggressive tackles in retaliation. Second, a culture prone to violence is characterized by low empathy, which certainly brings more reckless and aggressive skating. Finally, recall Nisbet and Cohen's experiments: a culture of honor implies different physiological reactions to stimulus like being bumped. It is reasonable to suspect that a player with these cultural traits who is constantly bumped in the hockey rink will produce more testosterone and cortisol, and become more prone to behave violently.

I present estimates of equation (3) in Table 5. I add controls in different columns as described in the bottom rows. The top panel presents results for the NHL seasons, and the bottom panel for seasons in all leagues in my sample. Column 4 contains my preferred specification. In this column I control for province and season fixed effects, team fixed effects, year of birth effects and NHL cohort effects. Thus, this model compares players in the same team and season, with the same age and experience but born in different counties. My estimate in the top panel shows that even for these players, a 1% increase in the proximity of early Mounties' forts to their county of birth reduces their penalty minutes per game by 0.064% (standard error=0.019%). When I consider all leagues the coefficient on the Mounties' proximity during the settlement is -0.043 (standard error=0.013). The significant and negative estimates imply that even in a common environment and playing for the same team, players' origins shape their behavior, suggesting a role for culture.

In columns 5 and 6 I add dummies controlling for the player's position and his height and weight. Though my estimates become less negative and less precise they are still significant. I prefer the specification in column 4 because these additional controls could be endogenous. Position could be part of the channel, if more violent players are assigned more defensive positions. Weight could also be part of the channel if more violent players are encouraged to gain weight and become more intimidating for rivals (height can be safely assumed to be exogenous, and its inclusion does not change my results in column 4).

Figure 4 presents a scatter plot of the residual correlation between Mounties' proximity during the settlement and penalty minutes per game. To ease the interpretation, I aggregate the observations in county bins, and let the size of each marker reflect the number of players in the bin. The left panel corresponds to the model in column 4, top panel. The right panel corresponds to the model in column 4, bottom panel.

The model in equation (3) is very similar to other ones previously estimated in the literature and outlined in the literature review. In particular, it exploits the notion that

Table 5: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game.

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Only NHL seasons.</i>						
Mounties presence	-0.066*** (0.019)	-0.066*** (0.019)	-0.064*** (0.018)	-0.068*** (0.019)	-0.061*** (0.020)	-0.058*** (0.021)
R-squared	0.038	0.038	0.056	0.135	0.160	0.184
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
<i>All leagues</i>						
Mounties presence	-0.045*** (0.013)	-0.049*** (0.013)	-0.048*** (0.012)	-0.043*** (0.013)	-0.034** (0.015)	-0.032** (0.016)
R-squared	0.029	0.069	0.118	0.162	0.186	0.202
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
<i>Covariates:</i>						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement in a player's county of birth on his penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

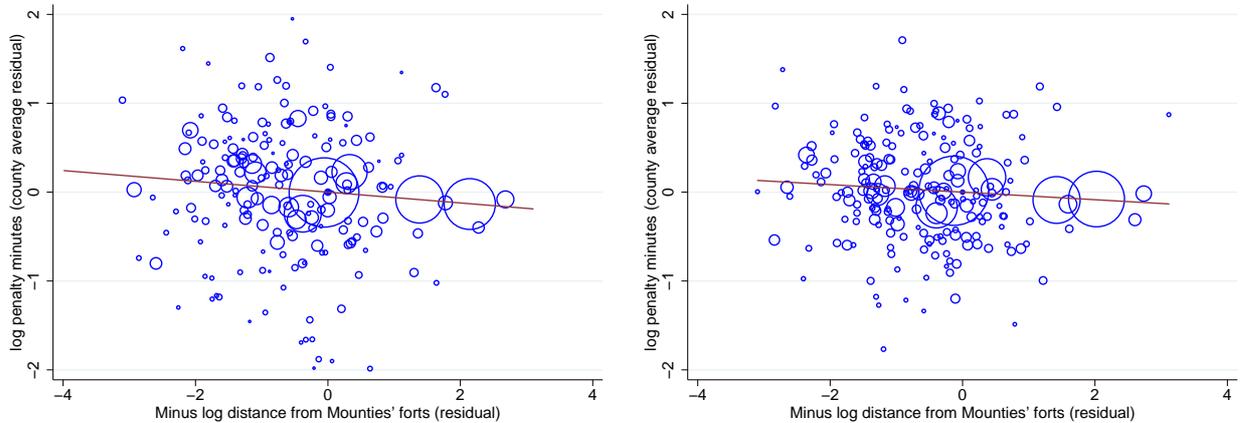


Figure 4: Partial correlation between Mounties' early presence and penalty minutes in all leagues (left panel) and the NHL (right panel). In both figures, state, team, season, birthyear and first NHL year effects are partialled out. I aggregated observations at the county level and represent the number of observations per county by the size of the circle.

culture is carried within the individual and isolates its effect by comparing the behavior of individuals facing the same external conditions. In the typical setting, researchers compare immigrants (mostly second generation), or people from different ethnic origins observed living in the same country. Importantly, I am not exploiting differences between teams based on different counties and influenced by their arenas' location external circumstances. This variation is fully absorbed by the team fixed effects in my regressions, as country of residence fixed effects control for external factors in similar settings in the literature.

Despite the similarities, my evidence offers some improvements over previous contributions (perhaps at the cost of dealing with one particular context with less external validity). First, behavior may be more informative than self-reported views measuring culture. This is because people could pay lip service to the dominant cultural views in their society, while their behavior would not be affected by these views. Second, many studies compare the behavior of people from different ancestries living in a common geography. However, the fact that people live in the same place does not imply they face the same external conditions: homophily and segregation imply people face different contexts, even when living in the same geographical area (Bisin and Verdier, 2000). If social networks reproduce some of the external factors affecting behavior, we cannot claim there is a role for culture the way I have defined here. This is less problematic in my context. On the one hand, I observe behavior inside the ice rink where players are subject to the same rules, influences, audience and pressures. Second, even if social networks play a role inside the ice rink, these are more likely to be more homogeneous. In particular, there is less homophily when Canadian players move to a new city in North America to play for a team, than when immigrants from different countries or ethnicity move to another country (homophily should be even less inside teams). Thus, it is unlikely that my results are driven by external influences of social networks. The only interpretation based on external factors that I cannot rule out is the possibility that individuals cater to the preferences of their hometown audience. It is not clear however that this is the case, or why professional players would do that. It seems more

reasonable that professionals would cater to the team's audience, which is common to all their teammates, and hence controlled by the team fixed effects in my regressions (specially in the NHL subsample).

All the papers in this literature, including mine, face the issue of differential selection – in my case into becoming a hockey player and choosing a particular team. This would be a concern if more aggressive individuals self-select more into becoming ice hockey players in counties far from the Mounties' early forts. Though I cannot discard this possibility, there is no clear story of why would this be the case. Also, I did not find any effect of county of birth exposure to the Mounties on points per game. This suggests that I am not capturing differential selection by type of players.

Now I explore the extent to which my estimates are driven by remote counties in the north. Table 6 presents estimates excluding northern counties or controlling directly for latitude and longitude. My preferred results using the more uniform NHL sample are robust to the inclusion of latitude and longitude as controls, though the estimates are closer to zero. The estimates for the full sample of seasons in all leagues are still negative but no longer significant. My results hold in both samples if I exclude the 5%, 10% or 25% more northern counties (among all counties in my data). However, the estimates are slightly less precise and closer to zero. This suggests that, even though my results do not depend on using the coarse variation created by north vs. south differences, they do exploit it to some extent. As I argued above, I believe this broad variation is part of my story, so I do not think this is an undesirable feature of my estimates.

I conduct several additional exercises in the appendix to explore the robustness of my results. I show that adding historical census controls and population (at the county level) does not affect my conclusion. Estimates are more negative and less precise, but still significant at conventional levels in most specifications. As argued before, I favor specifications without these controls, but at least it is reassuring to know that my estimates are not driven by population or settlement composition. I also explored weighting my regressions by the inverse of the number of players from each county. This is equivalent to estimating county fixed effects in equation (3) and regressing them on Mounties' presence, which is a secondary approach followed in the literature. I obtain more negative, though less precise estimates. In any case, my conclusion still holds and most of these specifications yield significant negative effects of Mounties' proximity. Finally, I estimated alternative models that are less sensitive to the presence of outliers and found similar results.

One important question in the literature is if cultural traits persist. To investigate this in my setting I focus on the sub-sample of NHL seasons and estimate interactions between Mounties proximity with years of experience in the NHL. The left panel in Figure 5 presents my results. The figure shows that the estimate conditional on experience is negative for rookies (0-2 years of experience), but even more negative for players with 3-5 years of experience. From there on the effect vanishes. For experienced players, past conditions in their county of birth do not shape their behavior. The estimates suggests that as players become more experienced, their cultural background or origin becomes less relevant in shaping their behavior. The estimates for rookies are harder to make sense of, but they could simply reflect their assimilation to the NHL. Though the figure suggests a convergence in behavior, it is hard to tell if players from remote areas with a culture of honor converge to a rule of more sportsmanship, or players from areas in which the Mounties guaranteed peace converge

Table 6: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game, controlling for differences between north and south.

	<i>Controls for lat. and long.</i>			<i>Excludes 5% northern</i>			<i>Excludes 10% northern</i>			<i>Excludes 25% northern</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Estimation sample: all leagues.</i>												
Mounties presence	-0.022 (0.018)	-0.018 (0.019)	-0.019 (0.020)	-0.041*** (0.014)	-0.032** (0.015)	-0.029* (0.015)	-0.039*** (0.014)	-0.031** (0.015)	-0.030* (0.016)	-0.042*** (0.013)	-0.032** (0.014)	-0.030** (0.013)
R-squared	0.165	0.188	0.204	0.163	0.187	0.204	0.164	0.188	0.204	0.163	0.189	0.201
Observations	10977	10977	10968	10864	10864	10855	10757	10757	10748	10066	10066	10057
Clusters	208	208	208	203	203	203	198	198	198	174	174	174
<i>Estimation sample: only NHL seasons.</i>												
Mounties presence	-0.048** (0.024)	-0.047* (0.024)	-0.047* (0.026)	-0.064*** (0.020)	-0.056*** (0.020)	-0.054** (0.021)	-0.067*** (0.020)	-0.061*** (0.021)	-0.060*** (0.021)	-0.070*** (0.018)	-0.063*** (0.018)	-0.061*** (0.019)
R-squared	0.137	0.162	0.185	0.136	0.162	0.185	0.137	0.163	0.185	0.134	0.164	0.182
Observations	4665	4665	4664	4608	4608	4607	4555	4555	4554	4233	4233	4232
Clusters	208	208	208	203	203	203	198	198	198	174	174	174

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement in a player's county of birth on his penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province, season, team, year of birth and NHL cohort fixed effects. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

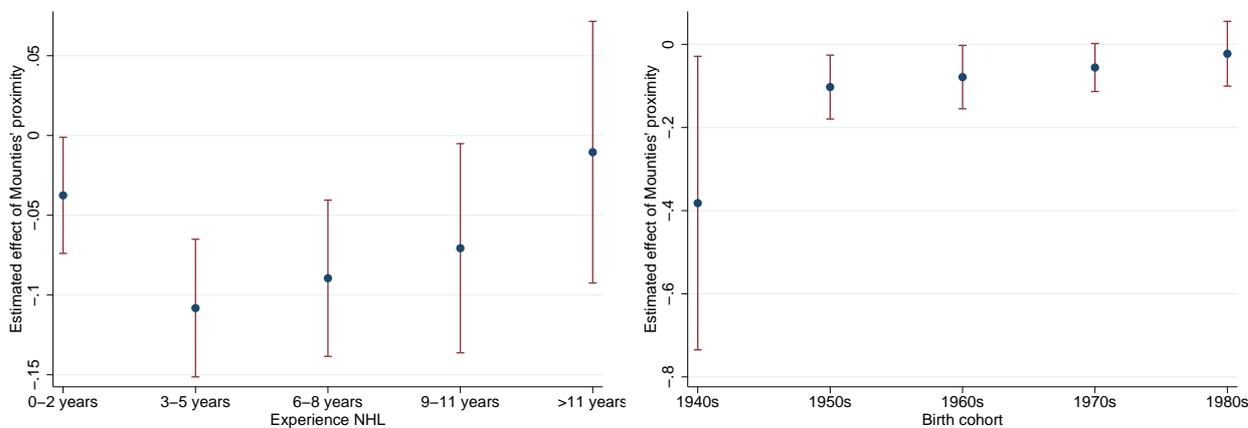


Figure 5: Estimates of the effect of proximity to early Mounties’ forts in players behavior conditional on experience (left panel) and birth cohort (right panel). Point estimates are surrounded by bars depicting 95% confidence intervals.

to a rule of violence predominant in Ice hockey.¹³

The right panel in Figure 5 shows a similar exercise in which I estimate the effect of Mounties’ proximity during the settlement for different cohorts. Though the fact that the effect varies with experience makes this hard to interpret (younger cohorts are mostly rookies), my results suggest that the Mounties’ effect was stronger for older cohorts, and is gradually fading away for new ones.

7 Persistence through institutions

So far, I have emphasized the role of cultures of honor in explaining persistence. However, culture may not only persist directly, but also have bottom-up effects on institutions that would create an additional channel of persistence. In particular, a culture of honor engendered during years of absence of an effective monopoly of force encourages people to claim for their right of self-defense; the state is seen with suspicion and individuals are reluctant to disarm themselves – specially when they have a say in democracy. Nisbet and Cohen (1996) argued that honor in the U.S. south is associated with political views favoring self-defense, gun ownership, corporal and capital punishment. Consistent with these ideas, historian Pieter Spierenburg argues that “even when a monopoly of force has been established for a considerable time, strong counter tendencies may operate against the internal effectuation of this monopoly. These counter tendencies lead to a stagnation in the spread of more “civilized” standards of behavior in some areas of social life” (see Spierenburg, 2006).¹⁴ In the

¹³One potential issue when interpreting this figure is that conditioning on experience may create a selected sample of players. If more aggressive players are more likely to retire or leave the NHL sooner, this would create a similar pattern.

¹⁴Spierenburg (2006) argues that this is what happened in the U.S.: people with a culture of honor were given political power before being disarmed by the state. Thus, they chose a limited state and opted for self-justice. In contrast, European states first gained the monopoly of force and civilized inhabitants before extending democracy, which limited the bottom-up influence of culture. As he puts it provocatively,

Prairies, counter tendencies sustained by cultural differences could have maintained divergent paths of violence and local institutions, despite the consolidation of a monopoly of force in all Canada.

In this section, I investigate if this channel operates by estimating the effect of Mounties' proximity during the settlement on voting patterns. Unfortunately, I only have data for 56 electoral districts, each containing several counties, so there is less variation I can exploit. Currently, I only have data for the 2004 parliamentary election. During each election, there are several candidates in every district, each from a different party. I use the vote share of conservative candidates as a proxy for political views more complementary with honor. Indeed, the conservative party was the main opponent to laws reducing the access to guns (Canadians have on average 30.8 guns per 100 residents, making it the 13th country with more guns per capita. The conservative party represented the majority of votes opposing bills introduced in parliament to restrict gun ownership).¹⁵ The conservative party also supports traditional family and religious values, which are a cornerstone of societies based on honor (see Pinker, 2011).

Figure 6 illustrates the correlation between my proxy for Mounties' presence during the settlement and the share of conservative votes among electoral districts in the 2004 parliamentary elections. The figure shows a strong negative relationship as anticipated. A 10% increase in proximity to the Mounties early forts decrease the conservative vote share by 0.38% (standard error=0.17%). I plan to extend this exercise to more formal regression analysis as soon as I obtain more data for additional elections and levels of aggregation. In particular, I am interested in exploring if the effect decays over time.

The evidence in this section shows that political support is biased towards the conservative party in areas that were outside the Mounties' scope during the settlement. This is likely to translate into differences in local institutions that provide counter veiling forces to the consolidation of the monopoly of force throughout the territory. Unfortunately I cannot measure these differences and I limit myself to conjecture their existence (which would be the case if the local political system responds to voter preferences).

8 Interaction with pre-existing cultural traits

In this section I explore whether institutions crowd out inconsistent cultural traits or, on the contrary, backfire when the appropriate cultural conditions are not in place. This is also related to whether culture changes depending on external conditions or it is so deeply held within individuals that only bottom up processes can change it. These, and many similar questions are related to the interaction of formal institutions and existing cultural traits.

I study the interaction between cultural traits brought by particular groups of settlers and the top-down process of the Mounties' deployment and expansion. By 1921, 14% of the Prairies settlers were Scots, 11% were Irish, 27% British, 26% from continental Europe, 11% from eastern Europe and the rest from other parts of the world.¹⁶ I focus on two particular

“democracy came too early to America.”

¹⁵Restrictions on gun ownership were approved through bills C150 of 1969, C151 of 1977, C17 of 199 and C68 of 1995. Bill C68 was only opposed by members of the conservative party.

¹⁶My 1921 census data is aggregated at the (old) township level. I assign each observation to the contem-

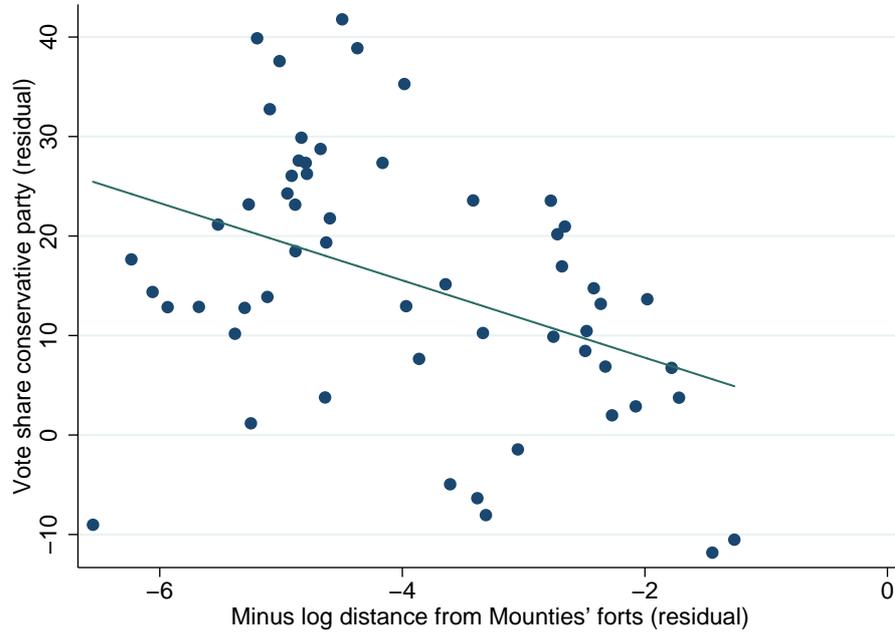


Figure 6: Partial correlation between Mounties' early presence and vote share of the conservative party in 2004 elections. State fixed effects are partialled out.

groups of settlers: the Scots and the Irish. My primary interest is on the Scots, who were mostly herders from the lawless borderlands of Britain, that were among the most violent areas of Europe (O'Donnell, 2005). The Scots that came to Canada are similar to the group of Scots and Ulster Scots (the so called Scots-Irish) that arrived to the U.S. south. I focus on this group because as previous literature suggests they brought their culture of honor across the Atlantic (Nisbett and Cohen, 1996 and Grosjean, 2013). On the other hand, the Irish that came to Canada were very different in culture and socio-economic conditions from the Irish that arrived to the U.S. in the late 18th century. The later were mostly Protestant herders from Ulster, while the former were deeply catholic farming communities (see Fischer, 1989 and Grosjean, 2013). I study the role of this group as well since they came in similar immigration waves to the Scots, creating overlap in some locations of different cultural values. Figure 7 shows the share of Scots and Irish settlers by 1921 in the Prairies for all counties in my sample.

Indeed, results mentioned in the previous sections imply that settlements with more Scots and fewer Irish are more violent during the settlement and contemporary. As expected, this suggests Scots brought their culture of honor. Though the results for the Irish are harder to interpret, my view is that their economy based on farming and cohesion caused by deeply held religious beliefs were more conducive for peace (Of course, this only applies to late Irish immigrants who came to Canada in contrast to the standard view for the Scot-Irish that came earlier to the U.S.). The share of settlers from other ethnic groups does not differentially affect violence. Thus, I assume throughout this section that Scots brought a

porary county containing the centroid of the township. Then I compute the share of immigrants from each origin as a population weighted average of all townships in the county.

culture of honor, while Irish settlers brought more peaceful traits relative to other settlers from England, Eastern Europe, Continental Europe and Asia.¹⁷

I now analyze the role of the culture of honor brought by Scots, and the “peaceful” culture of the Canadian-Irish. In particular, I estimate add the log of their share and its interaction with early Mounties’ presence to the models in equations (1), (2) and (3). In all models, I control for historical census covariates potentially correlated with Scots and Irish presence (religious composition and population in 1921). I use my preferred specification with the minus log distance to the Mounties’ forts as explanatory variable, and cluster standard errors at the county level (or county of birth for the hockey regressions).

Table 7 presents my results. As anticipated, the main effects in columns 1, 3 and 5 suggest that settlements with more Scots and less Irish were more violent during 1911 (subject to the caveats about my proxy for violence at this time), and are still more violent today. For example, the estimates in column 1 suggest that a 1% increase in the share of Scot settlers increases contemporary homicides by 0.893% (standard error=0.218%); while a 1% increase in the share of Irish settlers reduces them by 0.727% (standard error=0.195%). Though weaker, my evidence indicates that players born in counties with more Scots and less Irish inflow during the settlement receive more penalty minutes. It is interesting to note that this is not driven by selection into more lawless areas, since I control for Mounties’ proximity and showed there is no differential settlement patterns for Scots and Irish.

In the even columns I introduce the interaction between the share of Scot and Irish settlers with Mounties’ proximity during the settlement. I report main effects evaluated at the 25% percentile of proximity to the Mounties. My results suggest that the Mounties crowd out the culture of honor brought by the Scots. Thus, their culture only thrived in places far from the Mounties’ reach; while its effects faded in areas with strong Mounties’ presence. In particular, Scots and their culture of honor do not have any effect on contemporary or past violence among the 25% counties closer to early forts. The negative interaction between the share of Scots and the proximity to the Mounties’ early forts has several related interpretations. First, it suggest that a culture of honor is malleable: it only thrives in the absence of a strong monopoly of force, and otherwise it does not persist. Second, it shows that top-down institutional changes can work even when pre-existing cultural norms are not consistent with these changes. In particular, it shows that, at least in this case, formal laws did not backfire in counties with pre-existing cultures of honor. Third, it shows that part of the channel through which the Mounties reduced violence permanently was by crowding out cultural traits associated with violence, like the ones brought by Scots settlers. The Mounties had a larger effect precisely when there were strong cultures of honor in place. The results involving the Irish have a similar interpretation assuming they brought a culture of empathy and self-control, though the interactions in columns 8 and 10 are not significant.

These results challenge the idea that radical reforms may backfire if the necessary cultural traits are not in place. Several characteristics of the Mounties and their deployment may explain why this is the case in this particular context. First, as mentioned in the introduction,

¹⁷Pinker (2011) argues that the real explanatory factor behind the Scots-Irish association with violence in the U.S. is that they settled lawless mountainous regions, and not that they brought culture *per se*. Since I found an independent effect of Scots and Irish settlers on violence after controlling for Mounties’ presence, my evidence suggest that part of their influence occurs through cultural traits brought across the Atlantic, and that manifest in more (or less) violence.

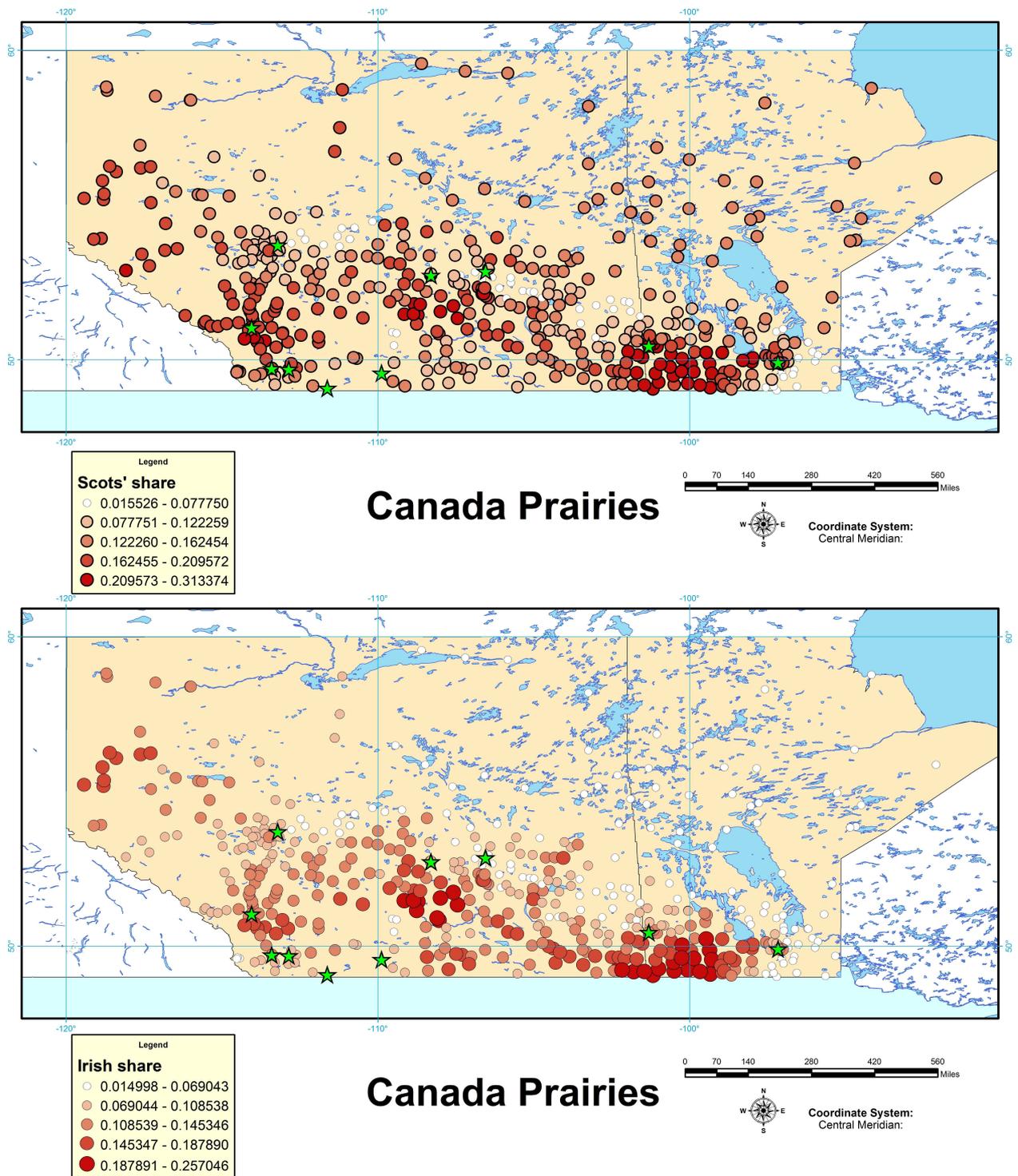


Figure 7: Location of Mounties' forts (green stars) during their early deployment and presence of Scots (top panel) and Irish (bottom panel) settlers by 1921. The red-color-scale represents the share of settlers from these origins during 1921 in each county.

Table 7: Effect of Mounties' presence during the settlement on several outcomes and its interaction with pre-existing cultural traits.

	<i>Contemporary homicide</i>		<i>Contemporary violent crimes</i>		<i>Homicide proxy 1911</i>		<i>PIM per game NHL</i>		<i>PIM per game all leagues</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Mounties early presence	-0.193*** (0.068)	-0.168** (0.066)	-0.253*** (0.075)	-0.181*** (0.062)	-0.084*** (0.028)	-0.050** (0.022)	-0.098*** (0.030)	-0.085*** (0.028)	-0.057*** (0.021)	-0.044** (0.021)
Share of Scots settlers 1921	0.893*** (0.218)	0.315 (0.390)	0.862*** (0.195)	-0.557 (0.372)	0.605*** (0.083)	-0.195 (0.152)	0.186 (0.158)	-0.108 (0.229)	0.295** (0.127)	0.049 (0.177)
Share of Irish settlers 1921	-0.727*** (0.195)	0.460 (0.373)	-0.917*** (0.178)	0.893** (0.365)	-0.434*** (0.078)	0.503*** (0.137)	-0.316** (0.157)	-0.016 (0.362)	-0.340*** (0.121)	-0.117 (0.261)
Mounties' presence \times Scots		-0.170 (0.226)		-0.656*** (0.205)		-0.384*** (0.083)		-0.189* (0.098)		-0.166** (0.072)
Mounties' presence \times Irish		0.575*** (0.187)		0.898*** (0.180)		0.467*** (0.061)		0.169 (0.167)		0.133 (0.116)
R-squared	0.118	0.138	0.149	0.189	0.335	0.435	0.144	0.146	0.171	0.172
Observations	541	541	532	532	348	348	4665	4665	10977	10977
Clusters	362	362	358	358	348	348	208	208	208	208

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement and the share of Scots and Irish settlers on different outcomes. The main effects in the even columns are evaluated at counties located at the 25th percentile of distance from the early forts. The dependent variable in columns 1 and 2 is the log of the homicide rate between 2008-2012. The dependent variable in columns 3 and 4 is the log of the homicide rate between 2008-2012. The unit of observation in columns 1 to 4 is the reporting station. The dependent variable in columns 5 and 6 is the log of the widow to widower rate in 1911. The unit of observation in these columns is the county. The dependent variable in columns 7 to 10 is the log of penalty minutes per game. The unit of observation in these columns is each player/season, the explanatory variable is the distance to the early forts from their county of birth, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects and a set of historical census controls, including population and religious composition in 1921. Additionally, I control for team, season, birthyear and NHL cohort effects in columns 7 to 10. Standard errors robust against heteroskedasticity and serial correlation at the county (or county of birth) level are in parentheses.

it was known that they were part of a territorial consolidation process. Therefore, their presence was not informative of a social norm of violent behavior. This could make results backfire, as in the model of Benabou and Tirole (2011). Second, the centralized structure of the force, with educated officials coming from Ottawa and holding certain cultural traits could have also played a role. The force relied on these officials for their functioning, and less on the private cooperation of locals holding inconsistent cultural values. This makes the top-down institutional change less likely to backfire, as in Acemoglu and Jackson's (2014) model. Finally, the array of services provided by Mounties gave them an element of legitimacy, that amplified their civilizing influence. Though speculative, these details could explain why the Mounties succeed in bringing persistent peace to the Prairies, even when the adequate cultural traits were not in place. In contrast, the results for other police forces like the Sheriffs in the U.S. were quite different, probably because they lacked legitimacy and relied heavily on local officers, who were influenced by the same culture of honor they were supposed to change.

9 Conclusions

In this paper I studied the role of the monopoly of force in shaping cultural traits associated with violence, and their persistence. I used the context of the settlement of the Canadian Prairies from 1890 to 1920. I find that places with a weaker monopoly of force by the Canadian state during the settlement – as measured by their distance to the nearest Mounties' fort – were and are still more violent despite the consolidation of the Canadian state throughout its territory since 1920. My interpretation is that places with a weak monopoly of force during the settlement developed a culture of violence that persisted in time. Consistent with my interpretation, hockey players born in these places behave more violently even when observed in a common environment: the same team in the National Hockey League. Besides the persistence of culture via inter-generational transmission and socialization, I find that culture promotes complementary institutions and political views, creating an additional channel of persistence. Finally, I show that the monopoly of force during the settlement crowds out pre-existing cultures of violence brought by immigrants from different origins.

Though my evidence comes from a particular context, the similarities between the settlement of the Canadian Prairies and other borderlands suggests the insights in this paper are more general. For instance, Graybill (2007) argues that there are strong similarities between the Canadian Prairies and the settlement of the U.S. southwest. As he concludes, “the Great Plains (which refer to the Prairies and the U.S. southwest) belong in any discussion of the “borderlands,” which for many decades has served as a sort of shorthand referring exclusively to the American Southwest.” My results indicate that the lack of a consolidated monopoly of violence is the origin of violence in borderlands. The absence of a monopoly of force by the state nurtures cultures of honor and allow cultures of violence brought by settlers to thrive.

My results support the idea that institutions – understood as external formal norms – shape cultural traits held within the individual. These cultural traits persist through a variety of channels (social, parental, institutional complementarity), but will continue to shape individual behavior even when the institutions and ecological conditions that engendered

them are long gone. Individual origins matter and form part of their cultural baggage even when observed in a common environment. In the particular case of the Canadian Prairies and the Mounties, proximity to their original forts significantly reduced past and contemporary violence by sparing settlers from having to develop a culture of honor, or crowding out pre-existing norms of violence brought by certain type of settlers. My paper shows that the past matters and influences our behavior, but we are not doomed to repeat it. As I show, the culture of honor carried in the baggage of Scot immigrants vanished when the appropriate conditions were found in the Canadian Prairies (just like experienced players in the NHL controlled the influenced of their origins). Under the right conditions, top-down institutional change can modify culture.

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Appendix “The Mounties and the Origins of Peace in the Canadian Prairies.”

Appendix A: Robustness to outliers.

In this appendix I explore the robustness of my main results to outliers. I focus on my preferred specifications in column 1 of Table 1, column 1 of Table 4 and column 4 of Table 5. For each of these estimates I produce two alternative ones removing potential outliers and presented in Table A1. In the odd columns I remove observations with a standardized residual above 1.96 or below -1.96. In even columns I remove observations with a Cook’s distance above the rule of thumb of 4 over the number of observations. The results imply my main estimates are not affected by the presence of potential outliers. I also estimated robust regression models. However, these did not converge when using homicide rates between 2008-2012 as dependent variable. In all other cases, the robust regression results were similar to the ones reported in the main text.

Table A1: Effect of Mounties’ presence during the settlement. Robustness to outliers.

Violence measure:	<i>Homicides</i> 2008-2012		<i>Violent crimes</i> 2008-2012		<i>Widow to</i> <i>Widowers</i>		<i>Penalties</i> <i>in NHL</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mounties early presence	-0.160*** (0.046)	-0.230*** (0.045)	-0.279*** (0.054)	-0.377*** (0.050)	-0.129*** (0.026)	-0.198*** (0.025)	-0.042** (0.017)	-0.065*** (0.017)
R-squared	0.043	0.058	0.083	0.104	0.131	0.182	0.282	0.254
Observations	509	509	504	502	333	333	4254	4269
Clusters	343	346	335	337	333	333	192	188

Notes: The table presents estimates of the effect of Mounties’ proximity during the settlement on contemporary violence. The dependent variable in columns 1 and 2 is the log of the homicide rate between 2008-2012. The dependent variable in columns 3 and 4 is the log of the violent crimes rate between 2008-2012. The dependent variable in columns 5 and 6 is the log of the widow to widower ratio in 1911. The dependent variable in columns 7 and 8 is the log of the penalty minutes per game for players in the NHL seasons. In odd columns I remove observations with a standardized residual above 1.96 or below -1.96. In even columns I remove observations with a Cook’s distance above the rule of thumb of 4 over the number of observations. The unit of observation is the reporting station or the county in columns 1 to 6 and the player/season in columns 7 and 8. In all specifications I control for a full set of province effects and a dummy for rural stations in columns 1 to 4. In columns 7 and 8 I control for team, season, year of birth and NHL cohort fixed effects. Standard errors robust against heteroskedasticity and serial correlation at the county level (or county of birth level) are in parentheses.

Appendix B: Map of variation exploited in different estimates.

The following figures present heat maps of the variation exploited in different estimates and sub-samples. The more red and smaller a county is, the lower it's residual distance to the early Mounties' forts. Colors and sizes are chosen to reflect distinct quintiles of the distribution of residual distance in each sample. Figure A1 depicts variation in distance after partialling out province fixed effects. Figure A2 depicts variation in distance after excluding the 5% more northern counties. Figure A3 depicts variation in distance after excluding the 10% more northern counties. Figure A4 depicts variation in distance after excluding the 25% more northern counties. Figure A5 depicts variation in distance after partialling out latitude and longitude.

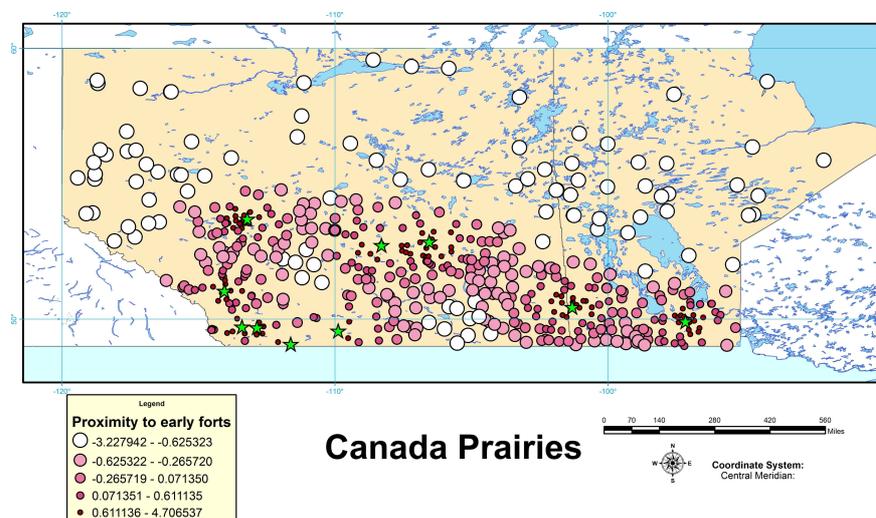


Figure A1: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts after partialling out state fixed effects.

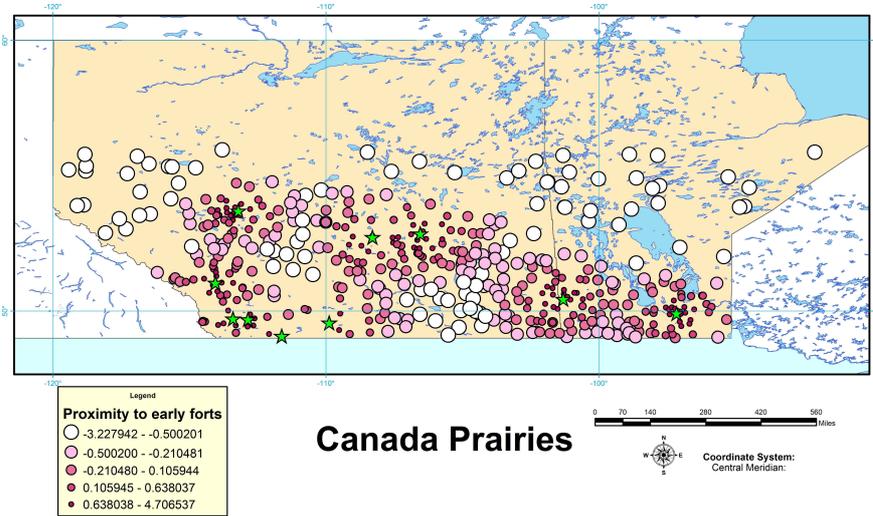


Figure A2: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts after excluding the 5% more northern counties and partialling out state fixed effects.

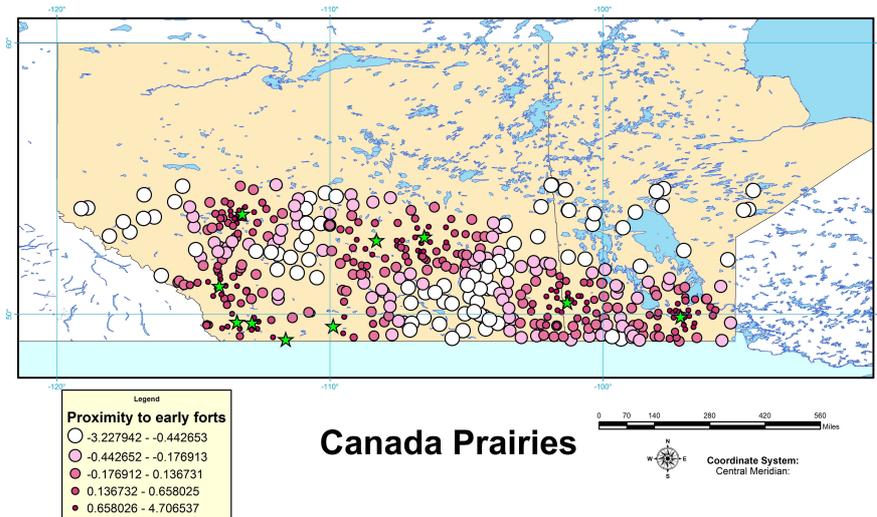


Figure A3: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts after excluding the 10% more northern counties and partialling out state fixed effects.

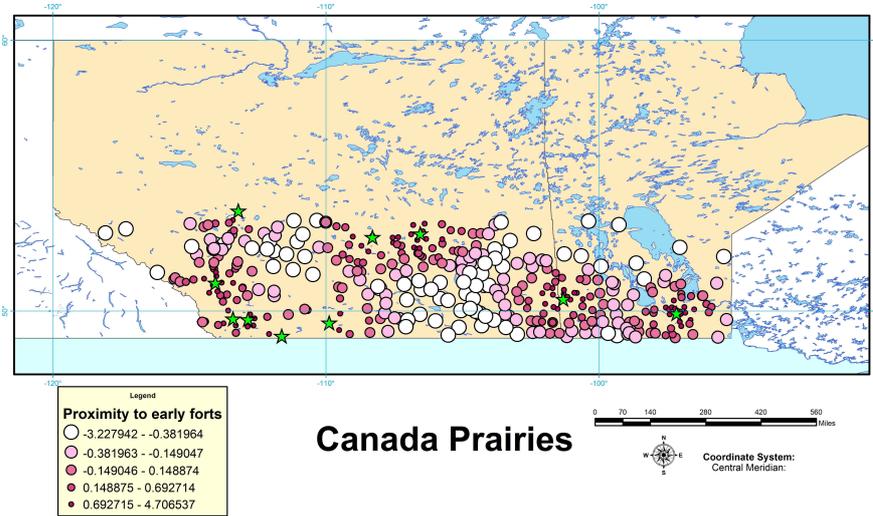


Figure A4: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts after excluding the 25% more northern counties and partialling out state fixed effects.

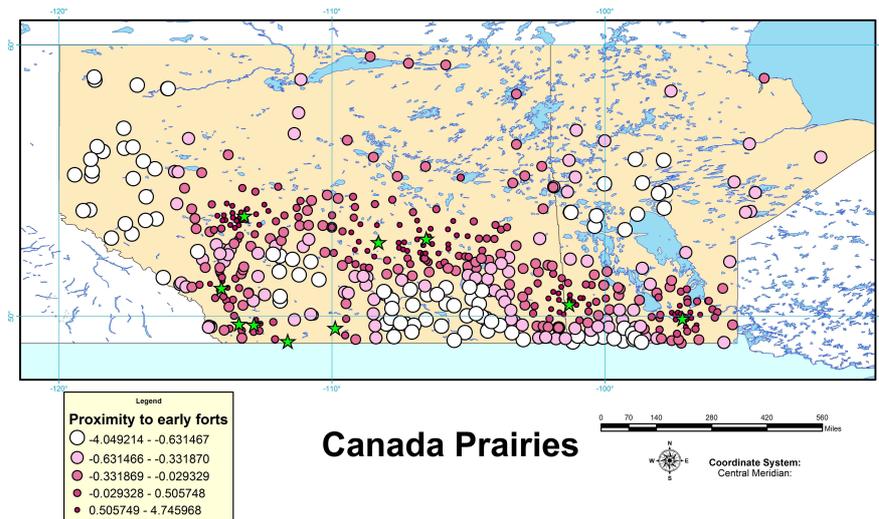


Figure A5: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian counties in my sample. The red-color scale indicates proximity to the forts after partialling out state fixed effects, latitude and longitude.

Appendix C: Additional results for hockey players and robustness.

Tables A2, A3 and A4 present alternative versions of Table 5 exploring additional results. Table A2 adds several covariates including a polynomial in population in 2011 and 1921, and composition of settlements from the 1921 census. Table A3 weights the regression by the inverse of the number of observations corresponding to players in one county. This is equivalent to computing county of birth fixed effects and regressing them on my proxy for Mounties' presence during the settlement, which corresponds to a secondary approach follow in some papers in the literature. Finally, in Table A4, I show there are no effects on performance, measured by points per game.

Table A2: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game. Robustness to adding county level covariates.

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Only NHL seasons.</i>						
Mounties presence	-0.105*** (0.034)	-0.105*** (0.034)	-0.104*** (0.032)	-0.101*** (0.035)	-0.096*** (0.034)	-0.086*** (0.033)
R-squared	0.054	0.054	0.073	0.146	0.174	0.195
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
<i>All leagues</i>						
Mounties presence	-0.056** (0.024)	-0.068** (0.026)	-0.072*** (0.027)	-0.062*** (0.023)	-0.058** (0.023)	-0.052** (0.022)
R-squared	0.039	0.080	0.129	0.171	0.197	0.211
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
<i>Covariates:</i>						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Table A3: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game. Robustness to weighting by the inverse of number of players per county.

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Only NHL seasons.</i>						
Mounties presence	-0.153*	-0.153*	-0.171**	-0.102*	-0.094	-0.084
	(0.086)	(0.086)	(0.081)	(0.062)	(0.061)	(0.059)
R-squared	0.073	0.073	0.160	0.360	0.375	0.401
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
<i>All leagues</i>						
Mounties presence	-0.047	-0.056	-0.079**	-0.071**	-0.058*	-0.052*
	(0.036)	(0.037)	(0.032)	(0.031)	(0.030)	(0.030)
R-squared	0.038	0.077	0.195	0.275	0.294	0.308
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
<i>Covariates:</i>						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Table A4: Effect of Mounties' presence during the settlement in a player's county of birth on his points per game.

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Only NHL seasons.</i>						
Mounties presence	-0.037 (0.038)	-0.037 (0.038)	-0.039 (0.035)	-0.032 (0.032)	-0.034 (0.031)	-0.035 (0.031)
R-squared	0.036	0.036	0.054	0.198	0.220	0.222
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
<i>All leagues</i>						
Mounties presence	0.017 (0.013)	0.009 (0.017)	0.005 (0.018)	0.004 (0.017)	-0.001 (0.017)	-0.003 (0.017)
R-squared	0.023	0.154	0.192	0.271	0.303	0.317
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
<i>Covariates:</i>						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of points per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Appendix D: Infractions resulting in penalty minutes.

The following is a list of actions resulting in penalty minutes (from Chong and Restrepo, 2014).

- Abuse of officials: Arguing with, insulting, using obscene gestures or language directed at or in reference to, or deliberately making violent contact with any on or off-ice official.
- Aggressor penalty: Assessed to the player involved in a fight who was the more aggressive during the fight. This is independent of the instigator penalty, but both are usually not assessed to the same player (in that case the player's penalty for fighting is usually escalated to deliberate injury of opponents, which carries a match penalty).
- Attempt to injure: Deliberately trying to harm an opponent.
- Boarding: Pushing an opponent violently into the boards while the player is facing the boards.
- Butt-ending: Jabbing an opponent with the end of the shaft of the stick. It carries an automatic misconduct.
- Charging: Taking more than three strides or jumping before hitting an opponent.
- Checking from behind: Hitting an opponent from behind. It carries an automatic minor penalty and misconduct, or a major penalty and game misconduct if it results in injury. Illegal check to the head: Lateral or blind side hit to an opponent, where the player's head is targeted and/or the principal point of contact
- Clipping: Delivering a check below the knees of an opponent. If injury results, a major penalty and a game misconduct will result.
- Cross-checking: Hitting an opponent with the stick when it is held with two hands and no part of the stick is on the ice. Delay of game: Stalling the game.
- Diving: Falling to the ice in an attempt to draw a penalty.
- Elbowing: Hitting an opponent with the elbow.
- Fighting: Engaging in a physical altercation with an opposing player, usually involving the throwing of punches with gloves removed or worse.
- Goaltender Interference: Physically impeding or checking the goalie.
- Head-butting: Hitting an opponent with the head. A match penalty is called for doing so.

- High-sticking: Touching an opponent with the stick above shoulder level. A minor penalty is assessed to the player. If blood is drawn, a double-minor is usually called. Referees may use their discretion to assess only a minor penalty even though blood was drawn. They may also assess a double-minor when blood is not drawn, but he believes that the player was sufficiently injured or that the offending player used excessively reckless action with his stick.
- Holding: Grabbing the body, equipment, or clothing of opponent with hands or stick.
- Holding the stick: Grabbing and holding an opponent's stick, also called when a player deliberately wrenches a stick from the hands of an opposing player or forces the opponent to drop it by any means that is not any other penalty such as Slashing.
- Hooking: Using a stick as a hook to slow an opponent, no contact is required.
- Instigator penalty: Being the obvious instigator in a fight. Called in addition to the five minute major for fighting.
- Interference: Impeding an opponent who does not have the puck, or impeding any player from the bench.
- Joining a fight: Also called the "3rd man in" rule, the first person who was not part of a fight when it broke out but participates in said fight once it has started for any reason (even to pull the players apart) is charged with an automatic game misconduct in addition to any other penalties they receive for fighting.
- Kicking: Kicking an opponent with the skate or skate blade. Kicking carries a match penalty if done with intent to injure, but otherwise carries a major penalty and a game misconduct.
- Kneeing: Hitting an opponent with the knee.
- Roughing: Pushing and shoving after the whistle has been blown or checking an opponent with the hands in his face.
- Slashing: Swinging a stick at an opponent, no contact is required.
- Slew Footing: Tripping an opponent by using your feet.
- Spearing: Stabbing an opponent with the stick blade.
- Starting the wrong lineup: When offending team fails to put the starting lineup on the ice at the beginning of each period.
- Substitution infraction: When a substitution or addition is attempted during a stoppage of play after the linesmen have signaled no more substitutions or if a team pulls its goalie and then attempts to have the goalie re-enter play at any time other than during a stoppage of play.

- Too many men on the ice: Having more than six players (including the goalie) on the ice involved in the play at any given time.
- Tripping: Using a stick or one's body to trip an opponent.
- Unsportsmanlike conduct Arguing with a referee; using slurs against an opponent or teammate; playing with illegal equipment; making obscene gestures or abusing an official.